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Management Skills and Principals of First Grade Colleges for Twenty First Century in Karnataka

H.V. Shankaranarayana*

Rajashekar Hebbar C.**

Introduction

In our day to day life we come across several organisations from different quarters i.e. large ones, small ones, formal and informal ones, which are primarily economic, social and political in nature. These organisations invade us from different angles and shape our destinies. Ours is a world of organisations. As pointed out by Etzioni "We are born in organisations, educated by organisations and most of us spend much of our lives working for organisations". Since most of us spend a considerable part of our lives working in or working for organisations, it is important for us to understand fully how organisations operate and how to manage them efficiently. College is one such social organisation, which almost all people come across during their life time. Therefore, it is important to us to fully understand how it operates, how to manage it efficiently and what are the management skills to be possessed by a Principal of a college as a chief executive.

The Perception

The present day management is a complex task especially in the case of educational institutions. Social, economic and technological developments are rapidly changing the educational environment and increasing size and number of educational institutions are introducing new problems. National boundaries are disappearing as far as education is concerned and educational institutions are facing stiff competition in higher education. In this context an educational institution require an efficient executive to manage its affairs and lead the organisation. It is the Principal of the college who is entrusted with this task. In Karnataka, to manage the First Grade colleges efficiently, the government has appointed cadre Principals of grade-I for the 141 Government First Grade Colleges, out of them 21 Principals will be further upgraded to grade-II post. The government's decision on the appointment of cadre Principals in private colleges is awaited. However, Principals are appointed from different faculties like arts, science and commerce and most of the Principals are unaware of management principles and functions. There are altogether 777 degree colleges in the state which offer B.A., B.Com. and B.B.M. degree courses, out of which 150 are government colleges, 289 are aided first grade colleges and the rest are unaided colleges.

The government's emphasis is on autonomous colleges and it is thinking of squeezing subsidies to higher education. The University Grants Commission is encouraging vocationalisation of degree courses. Government is also planning academic, administrative, curriculum and financial restructuring of degree level higher education. Due to this the Principals of first grade colleges are having a tough task ahead in

*Department of Postgraduate Studies and Research in Business

Administration, Mangalore University, Mangalagangothri-574 119.

**Lecturer in Commerce and Principal, Government First Grade College,
Barkur-576 210.

managing the affairs of the colleges. This article attempts to bring out different management skills to be possessed by a Principal of a college as a chief executive.

College as an Organisation — Its Components and Structure

First grade colleges are non-profit service organisations involved in the transfer of knowledge for economic growth by promotion of intellect and bringing positive transformation in the life styles of youths of the country. It is an unique complex organisation which demands hard work and cooperation of all for its success. College is a community of intelligent people who respect each other and every individual is equally important for the success of the organisation and here, the Principal is the first among the equals who is concerned with the management of this organisation.

Organisation is the backbone of management and sound organisation contributes greatly to the continuity and success of an institution. It is the place where managers or executives practise the art of management. Any organisation comprises the following different distinctive components or dimensions :

- a. The infrastructure
- b. The structure
- c. The people
- d. The process
- e. The rules and regulations
- f. The relationships
- g. The environment

College as an organisation is a system in the society which comprises the above complex distinctive components in delivering pre-determined benefits to the society.

The infrastructural facilities required for the college are land, building, furniture, teaching aids, well equipped laboratory, library and other facilities such as sports and games, hostel and canteen, drinking water etc.

Organisational structure of a college is of line and staff type and its structural component comprises college development council, departmental hierarchy, internal councils and committees.

The people component of a college generally consists of departmental higher officials, teachers, non-teaching staff, parents and old students.

The Process component includes recruitment of staff, admission of students, teaching and learning, examination & evaluation, guiding, counselling and enquiry.

The rules and regulations consists of Karnataka Civil Service Rules, Karnataka Financial Code, Karnataka Treasury Code, Grant-in-Aid Code, University Grants Commission's guidelines, Karnataka State Universities Act, University Admission and Examination Rules and Regulations, internal rules including disciplinary rules and regulations.

There is an integrated relationship between college, management, committee, Government, Department of Collegiate Education, UGC, university, staff, students, bank, treasury, social institutions etc.

Above all college is an integral part of society. It does not operate in a vacuum. Since the college operates in a society i.e. the environment, it cannot survive and grow unless it meets the needs of the society. College activities have their roots deep in the society and its culture. Major environmental factors of social, cultural, economic, political and technical nature have direct and indirect influence on the functioning of the college. Government, general public, parents and even local culture have their impact on the college. Thus college is a complex organisation and for its effective management, understanding of the above components is a must. The position of a Principal in a college is explained in the diagrams 1, 2.1 and 2.2.

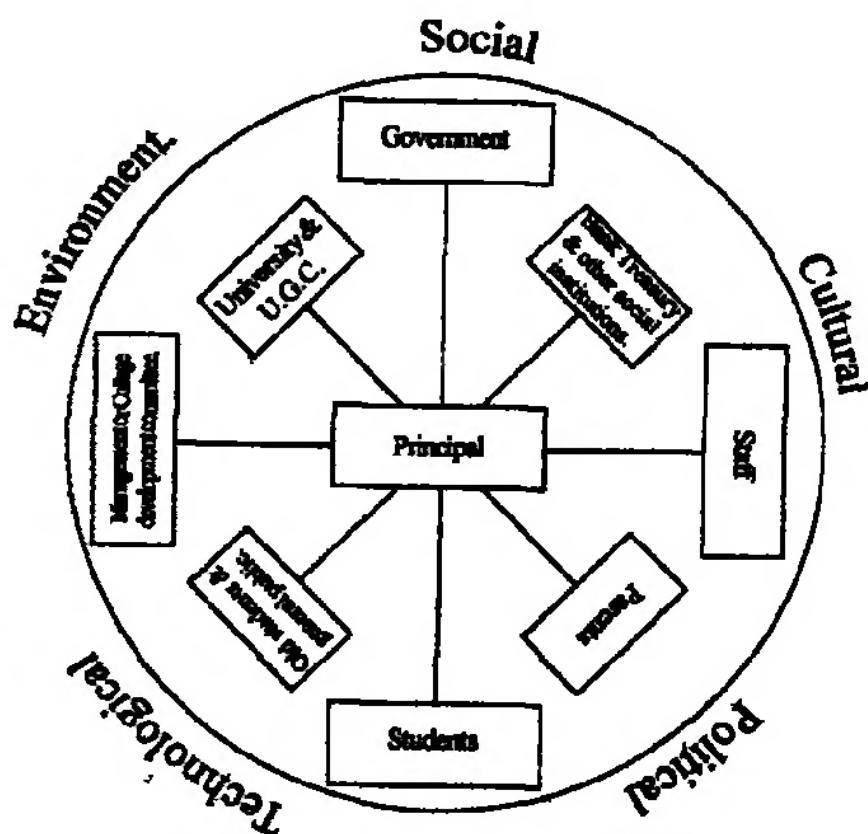


Diagram 1. Principal and the Environment

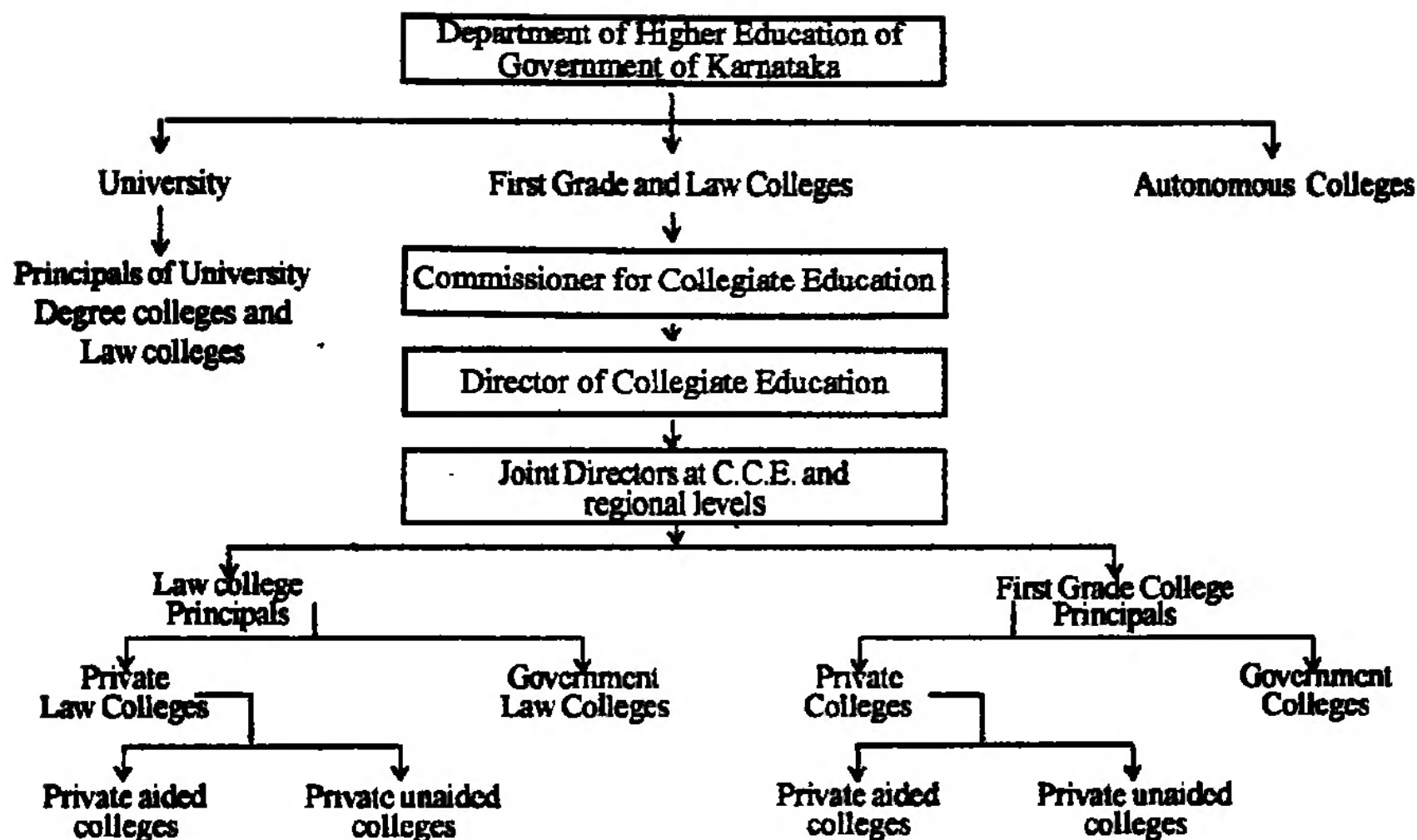


Diagram 2.1. Departmental Structure (Higher authorities).

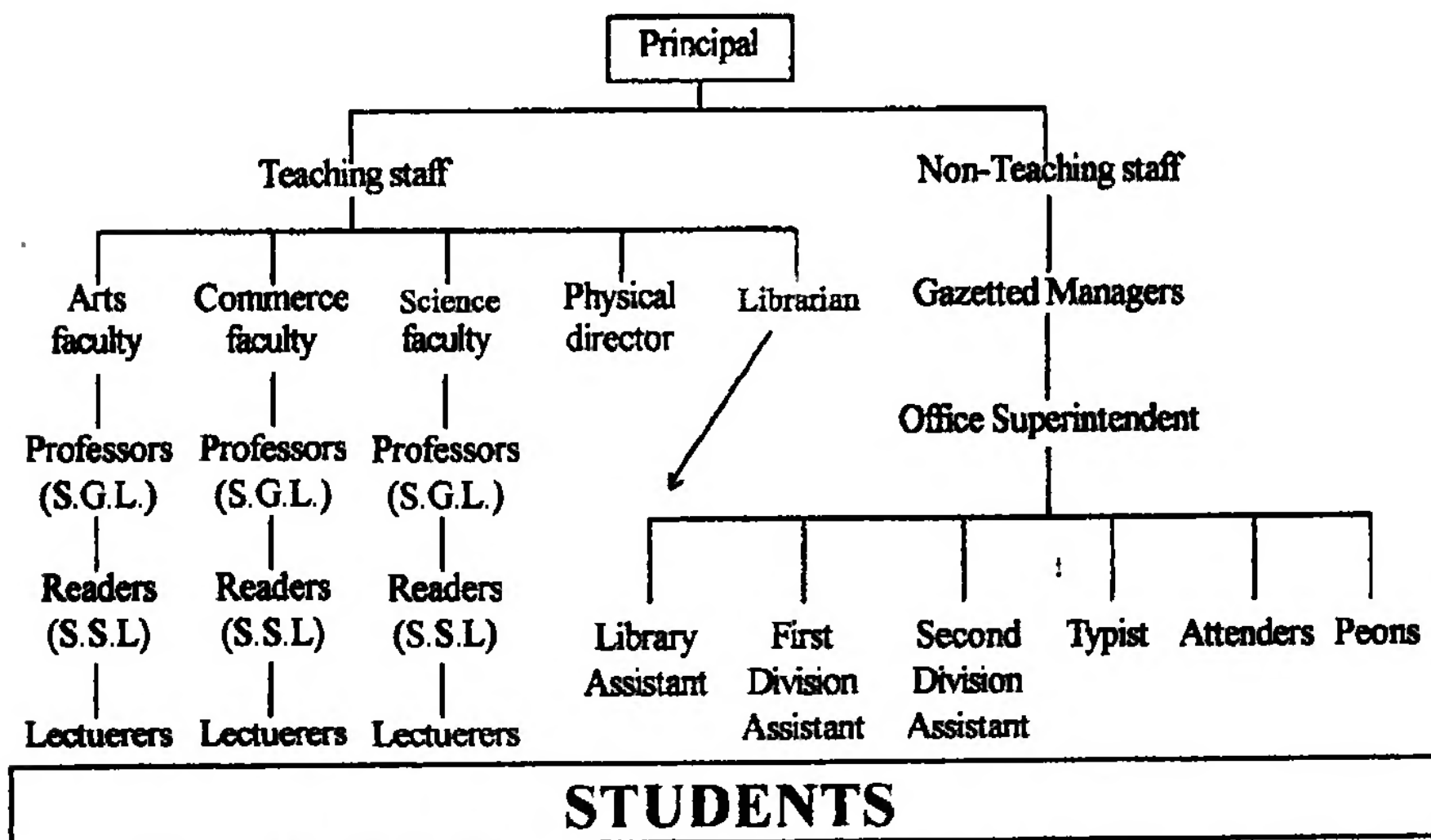


Diagram 2.2. College Level Organisational Structure.

S.G.L. = Selection Grade Lecturer.
S.S.L. = Senior Scale Lecturer.

Management Skills to be Possessed by a Principal

College is a complex organisation in a dynamic environment, where different large number of components interact. Principal is an authority or a chief executive who manages the college affairs. His job is indeed highly demanding and a challenging one. He has to plan, organise, coordinate, command and control the activities of others, so as to realise the organisational goals. He should be the reservoir of certain managerial skills to be successful in his task. The different management skills required for the efficient management of a college by the Principal are identified under three important heads comprising 1. The conceptual skills; 2. The human skills; and 3. The technical skills.

The Conceptual Skills

Conceptual skills depends on one's mental capacities to identify problems and opportunities, gather and interpret relevant information and make good problem solving decisions which serve the organisational purpose. All good Principals must have the ability to view the organisation or situation as a whole and solve problems to the benefit of all concerned. Conceptual skills comprise the following abilities.

1. Entrepreneurship

The Principal must act as an initiator and designer of controlled change in the college. As an executive he must have the ability to recognise the problems, implement solutions and take advantage of opportunities for constructive change.

2. Decision making ability

Decision making is an indispensable function of human life. The success or failure of an individual or organisation depends on the efficiency with which the decisions are taken. Any executive's life is a perpetual choice making challenge. Decision making is the process of selecting the best course of action out of several alternatives. Principal of a college as chief executive takes several decisions out of several alternatives. Principal of a college as chief executive takes several decisions in his day to day functioning. Whether a Principal plans, organises, hires an employee or fires a student or advises, approves or disapproves a work, he is engaged in decision making. Knowingly or unknowingly every Principal makes decisions of one kind or another constantly. All managerial functions of a Principal such as planning, organising, directing, controlling etc are settled by him with the tool of decision making. It helps in setting objectives, preparing plan of actions, delegating the

work, motivation of personnel and in directing innovations. Principal has to take decisions on developmental activities, appointment of staff, admission of students, fee structure, conducting of examinations, organisation of annual celebrations, disciplinary matters etc.

Decision making is a complicated process and efficient decision leads to achieving the desired objectives with minimum waste of human and material resources. Principals must follow the following steps in decision making to ensure success.

1. Identification of the problems.
2. Analyse the problems situations and distinguish between real and apparent problems.
3. Proper search for alternative solution or course of action.
4. Evaluation of alternatives.
5. Selecting the best solution or tune and course of action, considering economy of efforts and effects, degree of risk, situation and timing.
6. Effective communication of decision taken.
7. Implementation of decision or putting decision into effect or action.
8. Observing the consequences of action.
9. Evaluation of effectiveness of decision.
10. Re-analyse the situation.

Principals must be aware of some of the aspects which abstract the process of decision making.

1. Doubt regarding the accuracy of the information available.
2. Worrying about the other people (management, public, staff, etc) and what the other people think.
3. The decision environment in the college.
4. Getting advice from people who are not concerned.
5. Too much dependence on others in taking decisions.
6. Laziness, carelessness in taking decisions and misinterpretation of goals in one's own way.
7. Lack of commitment.
8. Uncertainty about the desired outcome.
9. Fear of failure and letting somebody down.
10. Lack of self confidence.

Following points must be kept in mind in the process of decision making :

1. Decision should be complete and practicable.
2. Decision taken should contribute to the achievement of objectives and goals of the institution.

3. Decision should be taken by considering the opinion of the people concerned.
4. Decision will not please everyone.
5. Decision should be timely, without delay and requires commitment.
6. Decision should be within the authority of the Principal.
7. Decision must be taken in spite of lack of support.

B. Human skills

Human skill is the ability to work with the willing cooperation of other persons. It emerges as a spirit of trust, enthusiasm and genuine involvement in inter-personal relationship. A person with good human skills will have a high degree of self awareness and a capacity to understand or empathise with the feelings of others. Since the Principals have to get the things done through others, they must have good human skills like leading, delegating, communicating, motivating and controlling others, which are analysed as below.

1. Leadership skill

The success of a college depends on leadership qualities of a person who leads the college. Leadership is the process of committing a group of people to specific goals. Without leadership any organisation is like an army without a General on a night without moon. In the context of a college, Principal as a leader has to lead his subordinates and students, inspire them to accomplish the objectives of institution. He has to motivate his subordinates and students, build confidence in them, sustain their enthusiasm, boost up their morale and ensure success and stability in the institution. The important leadership qualities that a Principal should possess to be successful and effective in his functioning are mostly the qualities of path-goal, trait and situational theories of leadership, which comprise :

a. Well set goals and paths : He should have definite goals and have plans and paths to achieve them.

b. Visionary or perceptive : Should have the capacity to see the entire organisation and its objectives and take all concerned along with to achieve the ultimate goal rather than viewing his own tasks and responsibilities.

c. Will power and self confidence : Should have confidence in his abilities and capacity of determination and self confidence to direct, motivate and control all the people concerned to follow through on the present track of actions.

d. Dynamic : As a leader must be able to incorpo-

rate the changes for the successful working of the college.

e. Alertness and sensible : Must be always alert and must not be caught unaware of any incident or happening relating to staff or students under any circumstances both inside and outside the campus. He should have the capacity to analyse the situation objectively and has to examine the problem logically.

f. Ambitious and a model to others : He must be ready to accept additional responsibility and should be a role model to others in behaviour, work and punctuality.

g. Emotional stability : He should be emotionally stable under any conditions of stress. He must not lose his temper and balance of his mind under any circumstances.

h. Intelligence and inquisitiveness : Should be intelligent to grasp and understand the situation and others' views and ideas correctly. He must also realise the need for continuing the learning process to keep oneself up-to-date by making use of all opportunities available.

i. Empathy : Must have empathy i.e. must be able to look at things from others' point of view. He must be a man of positive outlook with an open mind and able to look at things objectively and rationally.

j. Ability to judge, guide, and lead : Have the ability to judge people and build teams, resolve conflicts, guide, lead his subordinates and channel the talents to get the things done.

k. Moral qualities : Above all being the head of an educational institution, he should have moral qualities i.e. must be a man of high integrity, sincerity, discipline and self respect.

Other than the above said qualities a Principal must have a good communication skill and thorough knowledge of theory and practice of the job, rules and regulations of the department and organising ability. He must be a man of innovative ideas and must be able to conserve the resources for effective utilisation.

To perform different functions different leaders exhibit different styles. However, to lead and perform functions of a college following two styles of leadership are useful.

a. Task oriented style : The leader who places greater emphasis on task performance has concern for organising and defining the roles of group members, explain activities to be done, where and how it should be done and ways of accomplishment. He runs his own show to get the things done. This type

of leaders are normally autocratic, directive and authoritative. Some Principals follow this style.

b. People oriented style : A leader who places greater emphasis on the people have concern for employees and the people concerned. They establish channels of communication, give psychological support to them, develop mutual trust and empathy for them. They are democratic and encourage participation and team work. Many Principals follow this style.

Depending on the degree of emphasis on these two styles varied combinations of styles of leadership are defined as

a. Telling style (Autocratic style) : Highly task oriented and low concern for people with full focus on work. Where the followers are inexperienced, unable and unwilling to do the job, this style is suited.

b. Selling style (Supporting style) : High task behaviour and high relationship behaviour which is well suited for a situation where followers are confident but lack skill and require an active and involved leader to direct and support them.

c. Participative style : It involves high relationship and low task behaviour. When employees are able but unwilling to do the job and they require an adequate motivational force and psychological support rather than technical guidance, this style can be used.

d. Delegating style (Indifferent style) : Low concern for relation and low task behaviour which is suited for situation where subordinates are highly skilled with both job and psychological maturity.

A Principal has to lead staff as well as students. To be successful and effective he has to adopt his style to meet the situational requirements with a proper blend of different styles and provide leadership to the subordinates to achieve the institutional goals.

2. Effective communication skill

No organisation can function effectively without effective communication. It serves as the lubricant fostering smooth operation of management. It is a basic pre-requisite for the attainment of organisational goals. According to Paul Pigors and Mayors "about 70% of an executive's time is spent on communication". What communication does for an organisation resembles what blood stream does for an organism. Communication involves transmission and reception of messages between persons. Communication is effective only if the information given out reaches the concerned person. Information must be properly understood by the receiver and also it must be accepted and used to ensure success. In a

college, Principal as a leader acts as the nerve centre of information. Much of the routine and non-routine information coming into the college is received by the Principal. He acts as disseminator of information and has to transmit much of the information received to the staff and students. Information about the organisation must be transmitted to outsiders like government departments, UGC, university, department of collegiate education, etc.

In an organisation, communication between, superior and subordinate is an important aspect for its success. Effective communication in a college is necessary for the following purposes :

- To give instructions to staff and students about the job and learning process;
- To get information and suggestion from the staff and students;
- To pass on the information received from CCE, University, UGC etc to the staff and students;
- To give information to the staff and students about the institutional procedures;
- To inform the staff and students about their performance;
- To make each staff and student interested in his/her work and in the work of institution as a whole; and
- To reduce misunderstanding and improve relationship.

In an educational institution there must be a free flow of both downward and upward communication. However, the Principal must be aware that the flow of communication is affected by many factors :

- Total situation in the campus affects communication. A message which is O.K. in one situation may not be O.K. in another.
- Message can be interpreted in different sense. So proper response as intended must be expected to avoid faulty expression of message.
- To ensure the effectiveness the path of least resistance is advised.
- Information communicated should not be against the rules and regulations.
- Effectiveness of communication reception depends on the receiver. Proper understanding of the receiver improves the effectiveness.

3. Conflict management skill

Conflict is a part of everyday life of an individual or an organisation. It has considerable influence on subordinates' behaviour, performance and satisfaction. Conflict may be understood as collision or disa-

greement, contradiction and incompatibility. It is that behaviour of the organisation members which is expressed in opposition to other members. A college contains people with divergent personalities, perception, values and certain groups that often have conflicting views. Therefore, it is very difficult to manage conflict in a college environment. Principal must be aware of two important faces of conflict. On the one hand conflict creates stress, leads to diversion of energy and brings instability in the organisation and on the other it fosters creativity, innovation and brings change in the organisation. In a college conflict between staff and students, within the students, staff and Principal, staff or students and outsiders may arise.

Whenever conflict arises in the college, Principal has to analyse the problem and resolve the conflict. Different techniques like conflict stimulation, problem solving, organisation redesign, avoidance strategy, work re-allotment strategy etc, can be followed to settle the institutional conflicts depending on the situation and nature of conflicts. The five important conflict management styles that can be used are competition, collaboration, compromise, avoidance and accommodation which are shown in the following diagram.

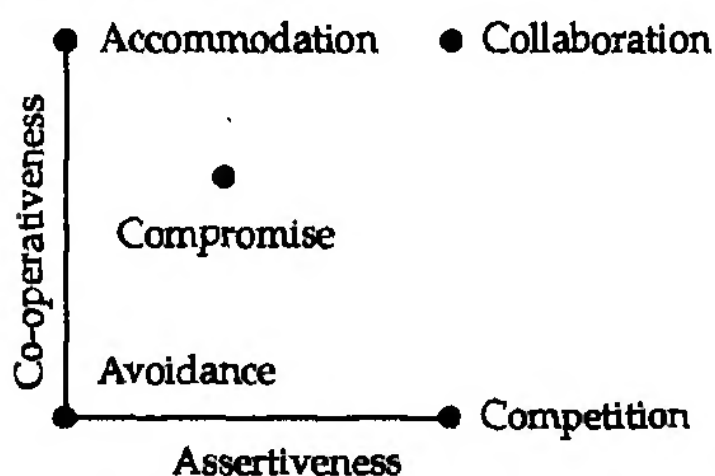


Diagram : 3. Conflict management styles.

Co-operativeness : Desire to satisfy other persons' concerns.

Assertiveness : Desire to satisfy one's own concerns

Only the collaboration approach scores high on both dimensions and is highly effective in resolving conflict and its situation influences the use of styles in resolving the conflict in a college environment.

4. *Motivation skill*

Getting the work done in a college depends mainly on whether the subordinates are motivated to do the work. Motivation is an important function which every executive performs to encourage the subordinates to work for the accomplishment of or-

ganisational objectives. Motivated people always look for better ways to do a job or a thing and they are more quality oriented. Motivation converts the 'ability to work' into 'willingness to work' and brings better relationship among the people concerned.

Principal as a chief executive should motivate the staff for better accomplishment of institutional goals through job enrichment, job rotation and participative management techniques. Staff and students must be provided with different facilities at the right time for which they are eligible. A word of appreciation for better performance, involvement of persons concerned in taking decisions, providing opportunities to the staff and students to exhibit their real talents are the different techniques that can be used in motivating the staff and students in a college.

5. *Performance appraisal skill*

Implementation of UGC pay scales has made the performance appraisal of teaching staff compulsory. Till recently, only the performance of staff of Government First Grade Colleges was compulsorily assessed through confidential reports. Principal must have the ability of assessing the performance of different teaching staff of a college, which is a complicated task. He must assess the ability of the staff in decision making, communicating, teaching and their ability to work with others as per the new guidelines of the government.

6. *Delegation skill*

A successful Principal is one who delegates his work to subordinates with the required amount of authority at the right time. If he does not delegate, he overburdens himself with the work which leads to stress and strain causing delay in work and waste of time and energy. Therefore, Principal to ensure success has to delegate different works like conducting examinations, organising sports day, college day, cultural activities, career guidance activities to his subordinates along with required amount of authority keeping overall authority with himself.

7. *Liaison skill*

The Principal must act as a liaison to establish and maintain a network of relationship with public, resource persons, old students, UGC, university, donors, parents, information centres in order to mobilise and bring necessary resources and information for the smooth functioning and growth of the college.

8. *Relation management skill*

Every organisation is composed of people who come from different walks of life and who are different from one another in their psychological make up. College is not an exception to this. In a college there are staff and students with different mental frame-

work. Most of the times, cause of failure in an organisation is attributed to systems failure, but actually main reason for the failure happens to be relation failure. Principal to bring out best results has to manage the staff and student relationship, inter and intra staff and students relationship in a college.

9. Controlling skill

Control is an essential part of an organisation. It is the managerial function involving measurement and correction of performance in order to make sure that organisational objectives and plans devised to attain them are accomplished. Principal is concerned with the controlling of human element in the institution which is a difficult task. He must be aware that the subordinates react to control in many ways.

a. Compliance : Comply willingly since they are accustomed to imposition of controls.

b. Purposeful deviation : Devise innovative methods of deviation and also keep the deviation from being discovered.

c. Aggressive attack : Can sabotage the controls and request for shift of accountability.

d. Resignation or discontinuation : Many leave the organisation permanently.

e. Transfer : Can transfer to other colleges or departments where control requirements are not stringent.

f. Join informal groups : Can establish or join informal groups to offset pressure generated by controls.

Principal can control the staff and students by fixing standard performance and by comparing it with actual performance. However he has to emphasise self control techniques in the institution and control techniques must be understandable, flexible and forward looking.

C. Technical skills

It is an ability to use special proficiency or expertise relating to a method, process, procedure or technique of a specific job. Following specific technical skills bring success to the Principal.

1. Knowledge of service marketing

Today people are ready to pay for excellence. The rationality of applying marketing principles to education service is to provide the world-class education to the users and making the educational institutions self sufficient with freedom to generate internal resources. For this Principal as a marketer has to apply the principles of social and service marketing by enriching the faculties' development, by developing teaching aids, introducing computers etc. His task is to make possible qualitative improvement in

the services made available to the students and society by the institution.

2. Resources management skill

It is already proposed that the state will move away from grant-in-aid system, run only limited number of government funded colleges with a given number of students. Recurring and running cost of an institution including teachers' salary, hostel maintenance, student services etc, has to be accommodated by self financing schemes in the days to come. This has made the Principal's job a difficult one. Principal must have the knowledge of budgeting and must be capable of allocating monetary and non-monetary resources of the institution to the best possible extent. He must try to get the grants from UGC, special schemes of government, tap donors and ensure the best utilisation of funds.

3. Knowledge of rules and regulations

The Principal must be aware of Karnataka Civil Service rules, Karnataka Financial Code, Karnataka Treasury Code, Grant-in-Aid Code, selection and promotion rules, enquiry and disciplinary rules and regulations, Management rules, UGC regulations, Karnataka State Universities Act etc, for the efficient running of the institution.

4. Knowledge of accounting

He must be aware of double entry accounting system, maintenance of books of accounts, governmental and quasi governmental accounting systems. Otherwise he may land himself in trouble.

5. Knowledge of computers

To be an efficient Principal, he must have the knowledge of computer operation which helps him in planning, analysing and coordinating various activities of the college. It reduces his dependency on clerical staff for information.

Principals and 21st Century

A successful Principal is one who adopts different management techniques according to specific and changing circumstances due to adoption of new way of life from 1991 by the union and state governments. Since he deals with human beings he must be aware that different people and groups behave differently under different circumstances and human aspect of management presents the greatest challenges to its scientific treatment. At present training of Principals of First Grade colleges is organised by Commissioner for Collegiate Education of the state, Administrative Staff Training College of Mysore, Staff Development Colleges of various Universities and Human Resource Development Centres of the State. The present

set of management skill development programmes of Principals in the state needs change in the direction of correcting weaknesses particularly with a view to developing skills suited for the fast approaching 21st century. A comparison of qualities of present day Principals is made with the future Principals

Present Principals	21st Century Principals
1. Planner	Visionary
2. Organiser	Leader
3. Controller	Strategist
4. Motivator	Learner and Motivator
5. Risk taker	Builder
6. Stake holder	Achiever
7. Value maker	Value Provider
8. Service giver	Service marketer

The comparison table clearly indicates the need for changing the approach, skills and management styles of Principals for 21st century. The following model explains the role of Principal in a college as a chief executive.

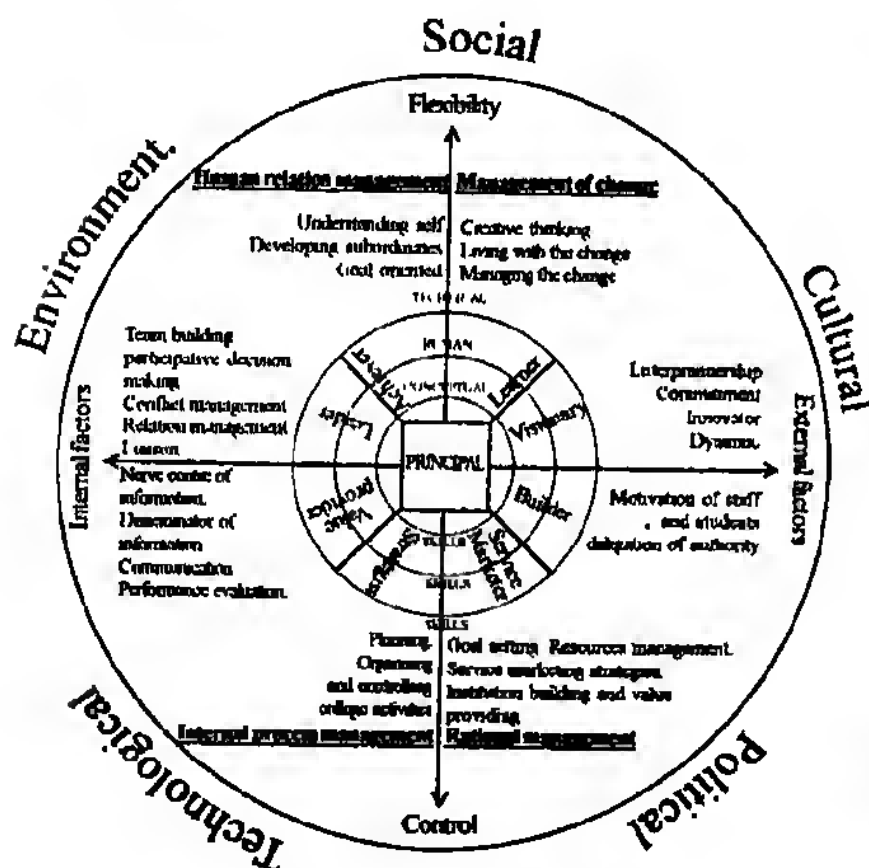


Diagram 4. Role of Principal as a chief executive

(Based on R.E. Quinn, *Beyond rational management*, San Francisco, Jossey Bass Inc., 1988, Page 86)

Conclusion

We are aware that the Indian state has adopted a new way of life since 1991 which comprises liberalisation, privatisation, globalisation, decentralisation of powers, squeezing of subsidies to higher education, promotion of growth process through rapid industrialisation, professionalisation of management of all productive and service activities etc. A need has

also been felt for a system of knowledge creation and distribution process in higher education to facilitate a transition to this new way of life. The present system is not able to meet the challenge of a transitional society. So the Government of Karnataka is thinking of making structural adjustment in higher education by restructuring academic, administrative, curricular, financial and evaluative aspects of higher education to suit to the changing needs. The implementation of new UGC scales also confers new responsibilities and changes in the management of educational institutions. In the light of these observations the Principal of a college has a greater responsibility and tough task of managing the institution in the days to come. For this, Principals of First Grade colleges should be well equipped with different managerial skills. The authorities concerned should provide proper training programmes with the help of competent authorities in the management field for the Principals. This will ensure better results and performance in the higher education system.

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Minor Research Projects : Measures to Improve Participation and Performance

D.B. Gujarathi*

Research is the second dimension of higher education. University Grants Commission (UGC) has framed Scheme for financial assistance to Major/Minor Research Projects. Under this scheme the teachers have an opportunity to do research at their headquarters. However the response from teachers appears to be poor. The existing guidelines have not been effective in attracting or motivating the teachers for doing research. I have undertaken a Minor Research Project and submitted the final report recently. Considering the experience gained in executing the project, discussions with Investigators from other colleges and careful thinking on existing guidelines for Minor Research Project, here are some suggestions to improve participation and performance of the scheme.

Components of the Scheme

The UGC Regional Centre, Head of the Institution and the Investigator are the main parties involved in the process. However for a new teacher, it is very difficult to understand from where to start and what are the roles to be played by each component, and how to proceed. I am trying to elaborate their expected roles as I experienced while going through the process.

(A) UGC-Regional Centres

- i) to accept proposals;
- ii) to scrutinize proposals with the help of subject experts;
- iii) to sanction and finance the project as per recommendations of panel of experts;
- iv) to frame and modify guidelines for financial assistance to such schemes; and
- v) to suggest thrust areas for Minor Research Projects.

*Lecturer in Chemistry, S.N. Arts, D.J.M. Commerce & B.N.S. Science College, Sangamner-422 605, Dist. Ahmednagar.

(B) Head of the Institute/Administrator

- i) to motivate and persuade the staff-members to submit proposals by making an appeal in staff meeting;
- ii) to provide infrastructure facilities to prepare proposals;
- iii) to release the funds as per demand from Investigator;
- iv) to take feedback of progress from Investigators;
- v) to forward annual progress report or final report and utilisation of grant;
- vi) to certify accounts and stock registers kept by investigator or the Institute;
- vii) to provide support facilities for conduct of research; and
- viii) to motivate teachers by appreciation.

(C) Investigator

- i) to evolve a topic for research by literature search through Current Awareness Service, periodicals in library, self experience etc
- ii) to submit proposal through Principal/ Head of the Institute;
- iii) To purchase books, equipments, chemicals etc required for the project;
- iv) to keep accounts and stock registers of assets and/or provide information regarding the same to the concerned staff;
- v) to discuss topic/results with experts;
- vi) to travel for collection of data field visits etc;
- vii) to attend seminars/conferences related to research topic and present papers;
- viii) to publish results in recognised journals;

ix) to prepare Annual Report, Final Report etc; and

x) to submit final Report.

Measures to Improve Participation and Performance

I) *Orientation of teachers* : It is not simple to evolve a topic for research instantly. The research attitude should be inculcated in the teachers through inservice training i.e. refresher courses. The university centres conducting refresher courses in particular subjects should give emphasis to research methodology by arranging lectures for persons doing research at colleges/remote places with help and guidance from advanced research institutes. Sufficient periods should be allotted for literature search, through University Library. The participants should be trained in evolving a topic for research and to write synopsis in standard format etc. Each participant should be asked to submit a model proposal for Minor Research Scheme.

II) *Revision of Existing Guidelines* : UGC should revise the existing guidelines and try to accommodate the following suggestions

i) The books purchased through research project grant should be submitted to Institute Library after completion of the project and the same should be given Accession Numbers.

ii) The Principal Investigator should be given suitable honorarium.

iii) The parent Institute to which Principal Investigator belongs should be given lumpsum energy charges @ 5% of the sanctioned amount.

iv) The equipment, chemicals etc purchased under Research scheme should be entered into stock registers of Department/Institute and duly signed by Head of Department/Institute.

v) There is a time lag between sanctioning of project and release of first instalment. The Investigator cannot proceed in research work as he is not able to purchase books/equipments/chemicals etc. To avoid this, the parent Institute should be advised to release the amount in advance as soon as

formal sanction letter is received from UGC Regional Centre.

vi) The Principal Investigator should be allowed to submit new proposal if annual report of previous project is forwarded to UGC Regional Centre. The same should be screened by experts and if selected, sanction letter for new proposal should be sent to the Institute. However the funds/advances for new proposal should be released only after the Final Report and Utilization Certificate of previous project is forwarded to UGC Regional Centre.

III) Incentives

There should be a system to scrutinize the Final Reports of Minor Research Projects and recommend to the concerned university to award M.Phil or Ph.D. degree to the Investigator depending on quality of work, presentation, social relevance, financial input, number of publications etc. For award of Ph.D., an open viva may be held, if required. Merit prizes should be given to Best Minor Research Project in each subject if sufficient number of such projects are available for selection.

The advantages of adoption of such rewarding procedure are

1. More and more teachers will apply for financial assistance to Minor Research Project.
2. Funds given will be utilized properly and final reports will be submitted to UGC in time.
3. It may serve as a cost effective tool for development of professional competence as the teacher does the research at his headquarter in addition to his routine duty. There should be no question of substitute's salary. If special facilities are required, the teacher may be deputed to nearby Advanced Centres on deputation for some period or he may perform the work in vacations.
4. More teachers will get qualified to apply for Major Research project.
5. It may ultimately inculcate research attitude in teacher community to solve/satisfy local needs.

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Professional Challenges : Need for Attitudinal Changes Among Librarians

R.S.R. Vara Lakshmi*

Introduction

The Indian librarianship secured the status of a profession mainly because of the contributions and teachings of Dr. S.R. Ranganathan as a life time venture. His concern and commitment to the profession needs no telling. The contemporary librarianship is confronted with information technologies (IT) in the design, installation and operation of information systems. The primary purpose of any information system is to cope with the challenge of providing its clients with increased access to knowledge base in any form, at any time, from any distance. The library professionals are essentially concerned with the execution of the same. The professional duties encompass a variety of activities, clerical as well as professional. However, the changing trends demand the show of more technical skills. Today, the library professional is entangled between two aspects — (a) the lowest level of daily routines like collection development, reset of stocks, records maintenance etc, and (b) the new dimensions of dissemination function, which demand incorporating the IT for information retrieval to realise the advantages such as increasing accessibility, decreasing cost, more rapid dissemination, more effective access and new services. A stage has been set wherein a partial dichotomy exists between those librarians that handle conventional information services with print media and those dealing with electronic information services.

Emergence of New Challenges

The library professional now witnesses a new era in information environment. This new era is characterized by

- new categories of users;
- new categories of information with the emergence of new subjects and interdisciplinary subjects;
- changes in the management styles;
- desire to catch up with the facilities available elsewhere especially developed countries.

- change of information activities from public sector to private sector;
- the penetration of IT in all information handling activities;
- emergence of new services, including network services.

As a result, the profession faces new challenges such as

- new types of jobs e.g. report writing, database management, networking etc.
- new type of management technique e.g. Information resources management, T.Q.M., crisis management etc.
- new type of responsibilities e.g. data protection, confidentiality etc.
- New information dissemination mechanisms e.g. LANS, CD-search, ISDN services etc.

Changing Roles of the Professionals

The contemporary information environment, which has got momentum due to the changes, leads to changing roles of professionals, from mere librarians to those of information managers, processors, searchers and distributors. This necessitates job re-design and re-evaluation. The manpower required to possess knowledge of operations technology, materials technology and knowledge technology.

The professionals ought to possess the following characteristics to suit to the present day information environment

- a. be committed, enthusiastic leader, capable of dealing with computer problems on several fronts;
- b. have to be well versed in planning, execution and marketing principles;
- c. have a thorough knowledge in the new methods and technologies;
- d. involved in collaborative work with resource sharing among libraries;
- e. capable of playing a cardinal role in the production of union catalogues, subject bibliographies, etc.

*Associate Professor, Department of Library and Information Science, Andhra University, Visakhapatnam-530 003.

- f. capable of developing target information services by synthesising information from dispersed sources;
- g. capable of effective exploitation of existing information retrieval services both manual and online;
- h. capable of measuring and evaluating the existing system.

The foregoing presents an ideal situation in which a professional works and the expectations of the profession from him under such circumstances. However, the realities are quite contrary, as we all know, especially in Indian higher education environment.

Realities

In reality, the library professionals are confronted with a number of problems.

1. Krishan Gopal has observed that "Investigations have shown that most frequently affected attributes are professional autonomy, professional behaviour and attitudes."¹
2. Resistance to change — There is resistance by managers as well as librarians to the changes in the profession; the management for finances and the librarians to adopt new skills.
3. Recognition of work — more often the librarians do feel that their work goes unnoticed. This diminishes their motivation.
4. Changing methods — although the basic principle and essential functions of the library/information system remain the same — in the past, present and even in future, i.e. provision of access to data/information/knowledge — the confrontation occurs with the changing methods of providing that access i.e. manual or automated.
5. Lack of demand for information — due to unawareness of users regarding their rights and privileges of information services, in many libraries the demand for information is not as expected.
6. Image — professional image is a basic ingredient to the success on the job and in the society. How do users perceive librarians? This is important because that perception affects the success of information professional. In reality, the librarians have a low professional image. The main reason being lack of role specificity and weak professional-client relations. Further, limited possibility of career mobility, inadequate support from the profession and the professionals adds

to the worsening of the situation. The result is low occupational prestige.

7. Ethics — an information professional must not violate the trust of the management and users. The librarian has the ethical/moral responsibility and accountability in every aspect of his professional activities. Of late the librarians are allowing unethical factors such as absenteeism, tardiness, low turnover, malpractices etc.

Attitudinal Changes Required

"Professional role includes an approach, a way of thinking and vision of the world."² Hence, the attitudes of the professionals have a major role to play in the performance on the job.

- a) The primary purpose of the present day professional is not to dictate what clients must do, but to discover what the clients need and to fulfil these needs by using the specialised professional knowledge and skills.
- b) The methods, manual or computer, themselves are not important; instead, the attitude that lies behind would be important. In other words, the thrust must be to serve the users than the method to achieve it.
- c) The professionals have to incorporate the changes occurring in information environment in their work. Rationality and susceptibility to change is a dominant character for any professional.
- d) The need of the hour is to develop a positive attitude. To think as "my job is challenging and I like my position" will definitely enhance their self esteem and confidence which in turn will improve the image of the library.
- e) The professionals should cultivate communication skills to interact and maintain good relationships with management and clients.
- f) The librarians expect a certain level of performance from their management. Similarly, the management also expects from them a certain standard of performance. It is only through such performance and participation, the authorities can be convinced.

Conclusion

The advances in IT makes us perceive a global system in which all information handling activities take place in a completely electronic mode. However,

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Curriculum Innovation in Bharathidasan University

H.G.S. Arulandram*

Curriculum may be defined as a comprehensive and all inclusive plan to achieve the goals and objectives set forth by the university through learning process with the participation of students and teachers within the given learning environment. Curriculum Development will normally be in the form of constructing or planning a new curriculum to achieve goals of education making it relevant to the requirements of people and preparing students to meet the basic intellectual and social demands of life. It may also be in the form of evaluating and revamping the existing curriculum to keep pace with emerging trends in educational scenario and societal conditions and requirements.

The concept curriculum is so flexible that it is possible to define it in as many different ways as one can conceive its application. Some of the well known attributes of curriculum will include — descriptive, prescriptive, static, dynamic and scientific; yet a close observation of all these attributes reveals that there are three factors common to all of them. They are i) Objective oriented content; ii) Planned learning experience; and iii) Element of teacher guidance.

While developing curriculum for a course it is very essential that the following factors are considered, as very often these factors influence and determine the nature and type of curriculum that we develop :

- the increasing number of students entering the educational system;
- the increasing number of educational institutions;
- projected demands/expectations of the Community/Society;
- the changes in emphasis of the social system;
- entry behaviour — knowledge, skill and attitude of students;
- integration of subjects of study;
- use of different learning systems as recommended by experts;
- instructional materials; and

*Director, Council for College and Curriculum Development, Bharathidasan University, Tiruchirapalli-620 024.

- terminal behaviour of the students and the role and functions of outgoing students.

Bharathidasan University has designed a new type of curriculum for its undergraduate courses, spelling out clearly the course objectives and the instructional objectives for each course. The redesigned curriculum has five components : a) Foundation Course, b) Core Course, c) Applied Course, d) Allied Course, and e) Extension and Extra curricular activities.

Foundation courses consist of Part-I Languages and Part-II English, each having four papers and limited to the study in the first two years. Each paper contains five viable and equal units and one of the five units is devoted for creating greater awareness of oneself and of the social, cultural and natural environment and these areas include value system, resolution of conflict in society, growth of moral and spiritual ideas, literary appreciation, appreciation of Fine Arts, Public Speaking, Population Education, Environmental Education, Health & Hygiene, Logic and Scientific methods and the like. This is accomplished by prescribing textbooks for study in those areas, if available, and by prescribing topics for teaching and discussion. Further, in both Part-I & Part-II, one of the four papers has been identified as "Tamil/Hindi/English for Competitive Examinations". However, in languages like Sanskrit/Urdu/Arabic/German/French etc where it may not be possible to identify a separate paper for Competitive Examinations, atleast a portion of a paper is devoted for training the students for Competitive Examinations.

Core Course covers indepth study of one major subject. In each Major, there are 14 papers, each paper carrying 100 marks for examinations. The 14 papers include practicals also for a total marks of not exceeding 400 wherever practicals are necessary. However, in some subjects (such as Music, Physical Education, etc) the marks allocated for practicals are higher than 400 as they are more practical oriented. Applied courses are the courses which are relevant and application oriented to the major subject. There are two applied papers, one in the fifth semester and the other in the sixth semester. Further, each candidate has to study two allied subjects/six papers appropriate and complementary to the major subject of study.

The university system has a great responsibility towards the society as a whole. All universities and colleges should develop close relationships of mutual services and support with their local communities, and all students and teachers must be involved in such programmes as part of their education. It is with this laudable aim that Bharathidasan University has introduced Part-IV Extension and Extra Curricular Activities as a compulsory component in the undergraduate curriculum. The working modalities will be thus :

1. The activities under Part-IV Extension shall be any one of the following : a) National Service Scheme; b) National Cadet Corps; c) Sports and Games; d) Population Education Club; e) Fine Arts & Performing Arts; f) Rotaract/Leo Clubs; g) Environmental Education; h) Youth Red Cross; i) First Aid; and j) Any other subject to the approval of the University.
2. The outline for each activity shall be drawn up by the Advisory Board of Extension (ABE) of the respective colleges consisting of the Principal (President) and the teachers incharge of the individual Extension activities.
3. These activities shall be limited to the consecutive two years of the UG course.
4. The activities will include Practicals/Field activities/Extension lectures.
5. The activities shall be carried out outside class hours.
6. The minimum participation shall be 45 hours per year (i.e. 90 hours in total (for two years).
7. Grades will be awarded on the basis of participation (attendance) performance and behaviour. Grades shall be entered in the cumulative mark statement as given below :

A : DISTINCTION, B : VERY GOOD, C : GOOD, D : FAIR

Consequent to the restructuring and revision of syllabi for all UG courses, the question paper pattern has also been modified. Since the syllabus for each paper consists of five viable and equal units, in each question paper there are three sections : Section-A containing twenty five objective type questions, which are compulsory, spreading over all the five units i.e. five questions for each unit; Section-B containing five short answer questions (100 to 200 words), one from each of the five units, with internal choices; and Section-C containing three essay type/long answer questions, (with internal choice) covering all units, and leaving the combining of units to the discretion of the question paper setter.

4. To conclude, the most important characteristic of the curriculum document of undergraduate courses in Bharathidasan University is that it helps the

- Student know what he will learn and what is expected of him as a result of learning;
- Teachers develop and use an effective instructional design and delivery system;
- Head of Institutions be aware of and provide the required facilities and manage the institution effectively;
- Examiners to ascertain what to evaluate and how to evaluate; and
- Employers gain an idea of the type of personnel they are going to get.

Professional Challenges.....

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in reality, the profession has its head in the sand. No doubt, that there are a number of problems that emerge as a potential force in information transfer. Still the professionals have to get self-motivated and positively respond to the needs of the customers with available infrastructure and thus energise the profession.

It is only pertinent to conclude with a prayer by Dr. S.R. Ranganathan.³

"May the library profession raise itself on its own effort,

May the Indian library profession regain its prestige and status,

May its salary scale continue to be worthy of a profession,

May the teaching of library science in India continue to be truly creative,

May the Indian library profession continually develop its library techniques,

May it carry library science through successive spirals of scientific method,

May it be ever becoming and ever new".

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Indian Education

From a Colonial Tool of Administration to a Strategy of Social Development

Dr. (Mrs.) Yasodha Shanmugasundaram, Vice-Chancellor, Mother Teresa Women's University, Kodaikanal, delivered the Convocation Address at the thirty-second annual convocation of the Madurai Kamaraj University, Madurai. She said, "While the period between Macaulay's Minutes on Education and the enunciation of the Directive Principles of State Policy enjoined by the Constitution of India forms the evolutionary stage of Indian educational system, the post-Independence period of the last fifty years has seen its transformation from a colonial tool of administration to one of a major strategy of social development in its several dimensions. Education is now an integral component of Human Resource Development. The latest National Policy on Education is a landmark exercise of a multi-pronged approach appropriate to correct the accumulated sins of social injustice, economic disparities and political inertia." Excerpts

Gone are the days when higher education was the privilege of selected social groups. Intra and inter-regional differences and structural imbalances have been reduced to a great extent. While the period between Macaulay's Minutes on Education and the enunciation of the Directive Principles of State Policy enjoined by the Constitution of India forms the evolutionary stage of Indian educational system, the post-Independence period of the last fifty years has seen its transformation from a colonial tool of administration to one of a major strategy of social development in its several dimensions. Education is now an integral component of Human Resource Development. The latest National Policy on Education is a landmark exercise of a multi-pronged approach appropriate to correct the accumulated sins of social injustice, economic disparities and political inertia. The massive literacy campaign is geared towards bringing the millions left out of the educational mainstream. Universal elementary education

attempts to take care the new generation. Apparently higher education is not high on the agenda of state policy. There are many skeptics on state funding for higher education. We cannot debate on the basics of state's prerogative for compulsory and qualitative education up to 14 years. At the same time we are equally to be concerned with the imperatives of higher education which ultimately supports the whole system. Misplaced preferences in this crucial area are counterproductive.

Priorities

Much depends on the nature of perspective planning which could cover a period of 15 to 25 years or about three to five Five Year Plans. Tamil Nadu had a perspective plan, for Human Resources and Social change for 1972-84. Already, the State of Tamil Nadu is engaged in this exercise for the period up to 2020 A.D. It is the duty of teachers and equally so of the students to participate in the thinking of perspective planning for higher education. The

realms of reasoning pertain to a few priority areas. Firstly, what with massive backlog of illiterates, dropouts in primary schools and meagre entry with uncertain continuity in secondary and higher secondary schools, the obvious priority for the state is to take a large share of educational funds for school education to make sure that in a decade from now, that 100% of boys and girls up to 14 years get qualitative, universal and compulsory education. This effort may require even at present money value, according to some estimates, an additional sum of Rs. 200 to 300 crores every year in the immediate future over and above funds currently available. Therefore, we get into the second stage of spurious reasoning by some that if this outlay is to be cut, it could be on higher education and that the state may seek partnership with industry and other sectors for additional funds. However, if public authorities find it difficult to persuade the rest of the economy to subscribe to higher education, a measure of specific Tax or Duty or Cess for research and development may be considered. The American example of the best universities like Stanford, John Hopkins, or Duke created by individual benefactors may not be an easy model considering the constraints on profits and other earnings, from the supply side, and the responsiveness of university leaders, from the demand side. The innovators on both sides are scarce. If there is adequate flow of academic and young research scholars who pursue the path of invention, discovery and rapid transfer of fundamental and applied knowledge from developed countries, surely a levy specifically for higher education may not be resisted by corporate bodies and other major economic sectors, considering the value addition and

global growth of Industry and Trade. We should know the conditions for success. The first condition is that this strategy should cover entire country as one market economy and the levy should be by a Parliamentary Act, and sharing of this revenue credited to Higher Education Research and Development Fund on an agreed formula, between the Union and State Governments. After higher education has been transferred to the Concurrent List, this is not a difficult or unreasonable or non-feasible condition. Second long before such levy is contemplated, it is necessary for the academics to have a shelf of research proposals and curricular programmes which will take Indian universities to the plane of global comparability in terms of academic research achievements and communication of the results to the funding bodies. Our university degrees should command respect and acceptability on the basis of accreditation, regional, national and international.

Performance Accounting and Audit

This should be easy if joint committees of academic and corporate bodies could lay broad guidelines and principles for spending with periodical performance accounting and audit, and wide circulation of such reports for the purpose of transparency. The third necessary and also sufficient condition is that one should recognise the needs of social justice especially gender justice without compromising on the quality of education and the competence of the preceptors and peoples. Equality of opportunities should not be deemed *ipso facto* equality of achievement. We give handicap in sports but do not declare all those with handicaps as victors. This logic should apply to all tests and

evaluation procedures.

Many decades have passed by since we have had the benefit of the Report of University Education Commission headed by Dr. Sarvepalli Radhakrishnan and Secondary Education Commission Report by Dr. Sir A. Lakshmanaswami Mudaliar. A holistic view of education of all types and at all levels, from the primary to the university level, covering the formal and non-formal, adult and continuing patterns of education, open schools and open universities, is the desiderata of the day. The findings of the proposed report on Prospect and Retrospect of Indian Education, 1950 to 2020 should be open to debate and given with freedom of choice for educators. Many academic exercises on the subject are available. If the application of research findings could come to grips with concerns of the new graduates of the day it will be welcome. Surely, then the most important concern hovering over the young graduates is the situation of unemployment. This is a problem which is old, chronic and not easily quantifiable.

Educational Guidance

Nevertheless, long before the students enter the employment market, it will be helpful if widespread and adequate counselling is made available in schools and colleges. There are many sectors which do not get skilled persons. Unemployment is largely due to mismatch of demand and supply. In a fast-changing economy, the scenario for the 21st century gives wide opportunities for young men and women to seek careers not open to earlier generations. Universal and compulsory apprentice scheme for graduates soon after graduation which may include social and national service sectors,

training in agriculture, industry and service sectors would hasten the day of full employment in India. Tamil Nadu which is a pioneer in primary, secondary and higher education could take a lead. Autonomous and accountable Boards of Education, for each level, could monitor and laydown rules and procedures, which are open and transparent, to prevent real or imaginary abuses, and bureaucratic delays. This will result in a quiet educational evolution of enduring nature.

A word of optimism to the young graduates relates to the age of electronics and multimedia communication. During the Industrial Revolution of Britain, two centuries back, the shift of household work to factory labour took place, because of the concentration of steam engines as source of power in factories. Electricity and electronics linked to computers and internet provide rare opportunity in the current decade to take work from the factory to home. Household production for domestic consumption and exchange market will be feasible, profitable and culturally innovative. Tamil Nadu, Andhra Pradesh, Karnataka and Kerala geographically proximate and in computer age close by to launch this electronic age for high income employment, and general advancement. It is not unusual for a body of university graduates and their mentors to make a plea for additional resources. But even more important is a thought on the pattern of expenditure in addition to sources of income. Currently around 95% of collegiate and university expenditure is on salaries. This is a feature which is out of tune with higher educational finance in advanced countries. In addition to changing the proportion between salary on the one

side, and outlay on libraries, laboratories, publications and continuous peer evaluation in professional gatherings on the other, we have to think of another balance which is long neglected.

Balance Between Disciplines

Languages provide the building blocks for communication. Modern History need not be confined to the state and its functionaries. It could cover the history of science, technology, culture, fine arts and intellectual ethics. Similarly we could have philosophy of science and of technology in addition to the traditional content of religion, faith and rationality. Ethics could be studied in terms of individuals, society or nations. The attractiveness of social sciences and humanities was the dominant feature of higher education half a century back. The superiority of one subject over another does not arise. The choice is either science, or technology or humanities or social sciences, all important in their own sphere. We have to capture the imagination of young scholars by turning the contents of these disciplines to the issues of the contemporary times so that both bread-winning and the making of a happy and cultured society will become real. It would hold a bright future for the young graduates. You are part of a vibrant democracy. Your right to vote at a young age is an extraordinary opportunity. The making of public opinion which is logical based on established facts and truthful observations and events amount to making governments responsive and their transactions transparent and accountable to the world at large. There is a saying that we get the government we deserve. I would add the government we get is as good as the in-

formed public opinion merits. Government by the people would mean people who are conscious of their duties and rights. All nations are coming together but poverty, neglect of human rights and injustice, social, economic and political, in any country is a threat to every other nation. In the global village of the 21st century you would all be happy and contented graduates, conscious as much of your duties as of rights.

New Trends in Educational Philosophy

There is a saying that education is a subject too serious to be left to educationists. We may add that economics and allied social and behavioural sciences are too serious and too vast to be left to the professionals who are not updating their knowledge by interaction with the people. Democracy seeks to humanize by popular consent technocracy and meritocracy with social needs, so that dictatorial tyranny and monopolistic exploitation could be prevented. Similarly studies in art and culture give a wider view of life, peace and happiness by healthy leisure time activities.

As in the past, in the future too, one or the other subject of material life of social sciences may seem to be more important than another. The function of the university is to cultivate and advance the frontiers of learning in all branches whether they are currently fashionable or not. Its duty is also to preserve certain endangered species in Universities. No one could contest the importance of engineering, technology, medical or computing sciences. The fundamentals of these subjects are in mathematics. And languages and fine arts help social engineering and social technology which

are equally important. The people should know the uses of nuclear power as well as its abuses of radiation hazard, or violent use by nations. The capability of robots and mechanised production, should be known along with the dangers of displacing workers in factories and farms. The speed and infinite variety of computer is easily understood. But the implications of its use in displacement of micro and macro economic production processes should also be considered. Without culture, the wide spectrum of music, fine arts, pursuits in social sciences including languages and linguistics, humanity may lose its nobler qualities of peace, altruism and public spirit. Men and women in technologically advanced societies now face fragmentation of family life, psychotic disorders and violence in many forms. The role of universities is not to thoughtlessly imitate the western models, but to advance the frontiers of knowledge by discoveries, social and technical innovations and continuous updating. Humanizing of the material and life sciences and a scientific approach to the disciplines under humanities is called for at the present juncture.

Higher Reaches of Higher Education

We should ask ourselves, how high is higher education in India? Derek Bok, with his experience as President of Harvard University, known for its numerous patents and discoveries, while evaluating the American system of higher education in terms of undergraduate education, and many professional schools and new developments and prospects for change observes that he has accumulated a list of splendid ideas, great and small, and came to the conclusion that teaching of ethics and public policy should be strengthened.

The opportunities for progress depend on not only good ideas but also public support by popular movement.

Older universities have had the oral tradition. Medieval universities were largely religious, voluntary foundations of scholars and their teachers often dedicated to a single idea or subject. Now the multi-disciplinary universities have brought newer specialities by hybrids and grafting. Research and teaching functions require special aptitudes, function-specific materials and human resource support. In the 21st century, Indian universities should attract students from developing and developed countries by reaching newer standards of fundamental applied research. India with its rich tradition should not rest on its oars, but recapture the spirit of inquiry and adventure to build an enlightened media, the press, the T.V. and other mass communication techniques. Higher the levels of education for all, the better will be the prospects for generating healthy public opinion, free from irrationality and populism. To preserve our social and physical environment and higher values of life, social and economic justice, peace and honour in the society and good neighbourliness among nations, the universities have a major role. Educational cost effectiveness and challenges are far more complex than it is realized. Vast reservoir of the human resources of India could be put to good use in inventions and discoveries. Scholars and teachers came from Europe and China, to Nalanda and Kanchipuram in the past to study humanities and sciences, in our ancient universities. Therefore this is not a dream. It could be a reality if we hitch our goals to reach the stars, as we have done in astrology in the past and astronomy in the present. There is no substitute

to hard work and dedicated endeavours in higher education.

Progressive Change in Governance of Education

I would be brief on this theme because it should be appraised with caution and a policy of *festina lente*. Attendance at lectures, several hours of listening to academic addresses, and patient presence at long talk of those who wish to hold forth are not compulsory even today in reputed Universities in Oxford and Cambridge. But out of love and regard for the subject students turn out to listen to the lectures of their choice. What is compulsory is the minimum number of dinners and lunches to be attended in the learned company of professors and scholars, and certified by the Warden or Master of the college. This tradition has continued for over 700 years. And they produce world class talents and make for new reaches of knowledge. Nobel laureates including Prof. Dr. Amartya Sen who got the merit of being the first Asian to get the coveted Nobel Prize for Economic Sciences, is a product of this educational system and freedom of choice for the teacher and taught. He has of course combined the traditional Indian values of Santiniketan founded by Rabindranath Tagore who gave the National Anthem, like Manonmaniam Sundaranar who gave the *Thamizhthai Vazhthu*.

Role of the Society and Alumni

The alumni of famous universities in the United Kingdom, Stanford, Yale, Princeton, and Harvard in the USA have built a tradition of benefaction and interaction with alumni to spur those foundations to reach heights of global recognition. The alumni of our Indian universities and longstanding colleges which have celebrated the centenary, diamond or silver jubilee years should come

forward to create major endowments with the support of the alumni based on academic stipulations and freedom of choice in research and specialisation. Matching grants from the UGC, Union and state governments could encourage the flow of funds, a new source of income to the universities. Educational and economic advancement is a continuing life time pursuit. In the emerging decades we would have fewer young people and more senior citizens. They have rightful functions in respect of monitoring and evaluation based on their experiences. Youthful energy and wisdom of the mature citizen could make for harmonious and enduring economic and technological advancement of India.

COMMUNICATION

Asian Regional Conference on Delor's Report

I came across the report of the Conference on Delors Commission published in the *University News*, February 22, 1999. The Conference was a scheduled programme of NIEPA and I was the Director of the Conference. The Conference was funded by NIEPA, UNESCO and Ministry of Human Resource Development. IGNOU shared the cost of Virtual Conference that I directed through Interactive Television on the 25th January. NCERT and NCTE presented two sectoral papers on School Education and Teacher Education respectively. NCERT was not one of the organisers of the conference as suggested in the report.

Prof. Marmar Mukhopadhyay
Senior Fellow
National Institute of Educational
Planning and Administration
17-B, Sri Aurobindo Marg
New Delhi-110 016.

CAMPUS NEWS

Seminar on Management Education

A one-day seminar on "Management Education at Undergraduate Level : Challenges and Opportunities" was recently organised at Prestige Institute of Management and Research, Indore. Inaugurating the seminar Dr. B.C. Chhaparwal, Vice-Chancellor of Devi Ahilya University, appealed to the academic community to deliberate upon various issues involved in management education at undergraduate level in particular. He stressed that quality of education should not be compromised at any cost and students should develop skills so that they were placed after completing the program of Bachelor of Business Administration. The program should be upgraded in such a way so that students succeeded in building their career.

Dr. M.S. Sodha, Vice-Chancellor of Barkatullah University, Bhopal in his keynote address highlighted the deficiencies of Bachelor of Business Administration program and proposed certain measures to be taken for strengthening the curriculum and facilitating the students in developing real managerial skills. He stressed that workshops should be frequently conducted and students should be exposed to industrial realities. The writing habits should be inculcated in the young generation and they should be trained in communicative style of writing. Dr. Sodha also emphasised that faculty development programs should be regularly held and faculty should also be exposed to Industry so that their orientation was appropriate for teaching the programs of management.

The first Technical Session was devoted to curriculum development and the speakers were Prof. R.D. Agarwal, Former Director, IMS, IIPS and School of Management IPS-academy, Indore, Dr. D.P. Mishra, Director, Shri Vaishnav Institute of Management, Shri C.P. Modi, Director, Christian Eminent Academy, Indore. Dr. Agarwal compared the existing curriculum of Bachelor of Business Administration with the model curriculum proposed by him. He stressed the development of presentation skills and Continuous Evaluation System. He pointed out that continuous evaluation was vital for a professional program and students were required to develop themselves by being in touch with the current realities of industry and business. Dr. Agarwal also stressed the utility of computer applications in management. Dr. D.P. Mishra was of the opinion that students studying Bachelor of Business Administration program should also be acquainted with entrepreneurial skills. He did not agree with most of the participants when he mentioned that BBA should not be a terminal degree. He emphasised that awareness about the program like BBA needed to be generated in general public. He also stressed that 25% seats should be reserved in MBA program for those who had Bachelor of Business Administration degree. He appealed to the government machinery to let the admission process be autonomous and suggested various ways for the promotion and placement of the students.

Shri C.P. Modi focused atten-

tion on the role of university in sustaining the educational programs offered by various institutions. He highlighted the weakness of the curriculum and stressed the development of various skills in the students.

The speakers at the second session were Dr. P.N. Mishra, Director, Institute of Management Studies, Devi Ahilya University, Indore, Dr. R.J. Lalwani, Director, School of Management, IPS Academy and Shri R.C. Tiwari, Chief Executive Officer, Kalyan Mills, Indore. Dr. P.N. Mishra pointed out the wrong handling of admission process by the Directorate of Technical Education of Madhya Pradesh. He highlighted that even Master of Business Administration had been greatly affected.

On one hand, we wanted Bachelor of Business Administration to be a professional program but on the other, we were ourselves suggesting that students completing this program should be eligible for MA in Economics and M.Com. If we really want to enrich the program we should give additional inputs alongwith the existing courses of study, for instance students should be allowed to undertake a Diploma in Computer Applications alongwith Bachelor of Business Administration.

Dr. R.J. Lalwani was of the opinion that major projects should be offered in the Final year so that a student was sufficiently exposed to the off the class situation. He cited a few examples of the management education in Taiwan, that how they emphasized the development of basic business skills. Shri R.C. Tiwari said that young

generation should be moulded as per needs of the industry. They should be made to realise that they could not escape reality by simply considering themselves superior to the experienced executives who had learnt by coping with day to day challenges at work place.

Dr. Upinder Dhar, who summed up the proceedings, pointed out that all institutions of management could be classified into four categories. Category I—those institutions which are autonomous and financially supported by Government of India i.e. All IIMs; Category II—those institutions which are University Teaching Departments; Category III—those institutes which are autonomous in functioning, maybe fully self financed or aided, but are affiliated to University; Category IV—is of those Institutes which are stand alone Institutions, neither created by the Act of Parliament or Assembly nor affiliated to any University. The BBA Program was mainly offered by the Institutes falling in second and third categories only.

"While examining the status of BBA we needed to look at three responsible bodies which are involved in the process i.e. state government that may be represented by Directorate of Technical Education or Directorate of Higher Education, the University and the Institution or Department offering the program. The Government should not control admission process as it needed to be handled professionally."

The institutions offering programs should ensure to have qualified faculty and proper infrastructure in terms of well equipped classrooms, reasonably upto date Computer Lab, rich Library and other support systems. The faculty develop-

ment programs should be regularly held and no one should be allowed to teach unless his or her credentials were well established. Dr. Dhar further stressed that Bachelor of Business Administration needed to be upgraded to be treated as a professional program comparable to Bachelor of Engineering, B.Pharm, B. Architecture, B.Sc. Agriculture and many such other programs. BBA should be promoted as a terminal degree so that students could be placed by industry in a meaningful manner. However, all those students who wanted to pursue higher education should be encouraged to go in for Master of Business Administration and allied programs.

Seminar on Human Rights Education

The Department of Political Science, Arunachal University, Itanagar recently organized a two-day UGC Seminar on Human Rights Education. Eminent Professors, Policy makers, academics, media people, NGOs and various social activists from the entire north eastern region and some from outside actively deliberated upon the various human rights issues confronting the state, the region and the nation as well. One academic session specifically centered round the human rights issues and challenges in the state of Arunachal Pradesh in which many controversial issues including the Chakma-Hajong refugee issues were intensely deliberated upon. Another session was devoted to Human Rights Education which harped on the role of media, NGOs and the educational institutions in sensitizing, educating and making people aware of the human rights issues. Human Rights : Issues/Dimensions (special reference to North East) was

the topic of one session in which many broad issues concerning human rights were taken up by the participants like right of women, child, aged, disadvantaged people, indigenous people, minorities and the others. The Minister of Planning, Mr. Tempa and Mr. Takum Sanjoy, Minister of State for Personnel dwelt at length on the general perspective of human rights and Chakma & Hajong refugee issue respectively.

The Chief Minister of Arunachal Pradesh, Shri Mukut Mithi, who inaugurated the seminar, deplored the spirit of intolerance in the country while addressing the gathering. The inaugural function was presided over by the Vice-Chancellor, Arunachal University, Dr. K.K. Dwivedi. The keynote address was delivered by Prof. D.P. Barooah, former Vice-Chancellor of Gauhati University and currently a member of the UGC Standing Committee on Human Rights Education. Prof. B.K. Roy Burman, another member of the UGC Standing Committee on Human Rights Education presided over the concluding session. The various issues deliberated upon during the two-day seminar included gender question, the rights of child, aged and indigenous people in the context of North East with particular reference to Arunachal Pradesh." The major recommendations of the Seminar were the establishment of an Interdisciplinary Centre for Human Rights in the Arunachal University Campus at Itanagar, starting of a Certificate Course on Human Rights from the next academic session, inclusion of the Human Rights topic in one of the Units in B.Ed training course and also holding a workshop on Human Rights Education, establishment of State Human Rights Commission.

Networking CSIR Labs

The Council for Scientific and Industrial Research (CSIR) has launched an ambitious programme of knowledge networking in its laboratories throughout the country. The programme has been undertaken to bring "unity in diversity" as Dr. R.A. Mashelkar, Director-General of CSIR, put it.

Dr. Mashelkar, who was in Kurukshetra recently to honour top scientists, said this programme was being undertaken in cyber space" connecting the CSIR network through "transponder space." Already 15 laboratories have been linked under the programme while the remaining 25 would be linked within this year. In fact, all of them had already been connected for holding dialogues.

Dr. Mashelkar maintained that this step would revolutionise information technology in the CSIR. He stated that the effort was to link informal knowledge with formal. This was being done by bringing laboratories together. Already 20 laboratories in the field of chemical, biological and engineering have been connected. The programme is known as "a new bio-active molecules" programme. Under this 120 plants and 20 diseases, based on the Indian traditional knowledge contained in Vedas and Indian medicinal texts, have been identified to chalk out a programme to determine a "new molecule for therapeutic drugs". This would have far-reaching impact on the health programme and new drugs would be available.

Dr. Mashelkar disclosed that last year Rs. 5 crore was spent on this programme while this year the government would spend double that sum.

In order to provide incentives to the CSIR laboratories the Union Government granted Rs. 100 crore this year for purchase of equipment. Besides, it also approved the "incentive of incremental commercial rupee" scheme for scientists and laboratories. Under this programme, the Union Government would provide a matching grant for each rupee earned by the CSIR laboratories by providing services to the industries in the private sector.

Dr. Mashelkar pointed out that under this scheme, CSIR laboratories earned Rs. 223 crore this year. Last year it had earned Rs. 203 crore and previous to that Rs. 167 crore. This achievement was impressive as there was allround recession and slump in the industry.

Dr. Mashelkar stated that the CSIR was looking forward for forging a "technology partnership" with private industries and corporate giants. As a first step of recognition of the contribution by CSIR laboratories, he had been conferred the J.R.D. Tata Corporate Leadership Award by the private industry. This was for the first time that a scientist from the public sector had been conferred the award.

Talking about the defence security, Dr. Mashelkar maintained that the space defence and atomic energy programme had achieved excellent results. Similarly, the country had excelled in integrated missile programme. This had been done without foreign aid, which was laudable.

Talking about economic security, Dr. Mashelkar wanted that Indian industries should become "innovative". The country should undertake "forward engineering" and should not go after "imitative research". He maintained that un-

less and until Indian goods became superior in cost and quality, it would be difficult to compete in the international market. The only way to innovate the Indian industry was to create Indian knowledge network. This needed an "all-Indian" programme in which Indians residing abroad should be persuaded to participate. This was essential, particularly in software and computers.

Delving on food security, Dr. Mashelkar stated that danger signals could already be seen here. This was so as the country had already made optimum use of land and water. The only way to increase food production was to adopt new bio-technological methods and create disease-resistant plants by using biotechnology. He sounded a note of caution on misinformation campaign about patent laws and patents. In this field India must become an enlightened society as far as numerous innovations were concerned. He said India had 30 patents only, while China had 300. Similarly, China had 5000 patents training institutes while India had none. Likewise China had filed 15,000 patents this year for recognition while India had filed only 5000. Therefore, we were far behind both "qualitatively and quantitatively" in this field. He maintained that the country should launch a "revolution of grey matter", as it had fantastic infrastructure in this field.

He was of the view that the next century was going to be a "century of the mind" and Indians were far ahead here. The country should, therefore, avail of the "think-tank" which was available here. This would bring economic security to the country and innovation in Indians' living standards.

IIT-JEE in Two Stages

The Council of the Indian Institutes of Technology (IITs) is reported to have decided to conduct its joint entrance examination (JEE) in two stages and also raise the fees for both Indian and foreign students. These decisions were taken at the Council meeting held recently in New Delhi. Human Resource Development (HRD) Minister Dr. Murli Manohar Joshi presided over the meeting.

The Council decided that in view of the large number of students sitting for this examination, it would be better to go in for a two-stage process of selection.

The first stage comprising a screening paper of three hours duration will be held on the first Sunday of January every year and the second stage will be on the second Sunday of May every year. The second examination will comprise three papers of physics, chemistry and mathematics, each of two hours duration.

As per this plan, merit lists will be prepared after the first examination to select about 15,000 candidates, who will be able to take the second exam. The syllabus and eligibility are to remain the same. Only one application form will be required for both the examinations.

As regards the new fee structure, it was decided that for foreign students, the revised fees would be 7,000 US dollars per year for 1999-2000 and 8,000 US dollars per year for 2000-2001. The fees for the Indian students was raised to Rs. 12,500 per semester for those applying for the year 1999-2000 and this will be further raised to Rs. 15,000 per semester in the subsequent year.

Given the booming computer software market, the council de-

cided that IITs will seek to fulfil the need for skilled and talented manpower in this field by running state-of-the-art postgraduate programmes in information technology (IT). Realising the important role that IITs can play, the various institutes have already started planning special programmes in IT. IIT Bombay, for instance, has established a separate School of Information Technology and the others are planning to do the same.

Vision 2020 in Higher Education

A seminar on Vision 2020 in Higher Education was recently organised by the SNDT Women's University as a part of Gurukul 99, an international fair in education and career guidance. The objectives of the seminar were to activate discussion on a vision for higher education in India for 2020, to acquaint participants with techniques of scenario building; and to initiate the process of strategic planning. The methodology included lectures, sharing of ideas, discussions and creative interaction to achieve these objectives.

Inaugurating the seminar Dr. B.S. Sonde, Vice-Chancellor of Goa University recounted the changes that had taken place in higher education system from its inception till date and the direction and methodology it would assume in future. He said that telecommunication, computer and entertainment technology would support traditional education in maintaining high standards in spite of increasing number of students with varying educational needs. Video compression technology, higher frequency bands and Direct to Home Service will be of great importance. Making frequent references to the Goa University experiments in this area he warned that if we did not equip ourselves for the

future events, the events would overtake us.

Dr. Mariamma Varghese, Vice Chancellor of SNDT Women's University, said that the important issues in future would be of equity and access to higher education and of maintaining quality while dealing with larger quantity. Innovative course will have to be developed to meet the changing educational needs. She emphasised the importance of value education and empowering the youth through education. She suggested that a mixed mode of information technology and classroom education would be useful to achieve educational objectives in future.

Mrs. Uma Ganesh of ZED Career Academy spoke on the emergence of virtual universities. She said that technology mediated education would bring about a paradigm shift in the process of learning. Mr. Gopal Rajgopalan of IL and PS spoke on the need for scenario building in higher education to make future planning useful. Dr. Padmakar Sapre, management expert, identified basic ideas of strategic planning and how educational Institutions should develop appropriate strategies to meet the requirements of delivering educational products in an era of information technology.

Colleges May Award Own Degrees

A Task Force on Amendments to the University Grants Commission Act and headed by the noted educationist, Dr. Amrik Singh has suggested that some exceptionally good colleges and autonomous institutions may be allowed to award their own degrees, independent of the university to which they were affiliated. It has also recommended norms for recognising foreign universities, and redefined

"universities" to mean only those educational institutions recognised by the University Grants Commission. The report of the Task Force was recently submitted to the Human Resource Development Minister, Dr. Murli Manohar Joshi.

The committee has strongly suggested that the "degree awarding system" should be restructured to ensure that good colleges were not tainted by the poor reputation of the university to which they were affiliated; and to encourage them to innovate their courses. "Some leading colleges and autonomous institutions which have attained high standards should be allowed to award their own degrees (and) these degrees should be recognised under the provisions of the University Grants Commission Act and its rules", the committee has said.

It has pointed out that at present some universities have more than 300 colleges affiliated to them, making it "almost impossible" for them to ensure "flexibility of operations". This adversely affects colleges which were willing to experiment and innovate. "It has been very strongly felt that there is a need to restructure the system of degree awarding institutions... and the committee after deliberations has suggested the introduction of a third tier of degree awarding institutions without incurring heavy expenditure", the report says. The "third tier" would be the colleges themselves — the other two tiers being the universities and deemed universities.

On foreign universities, the committee has said that their "marketing" has become a "very serious issue" in the past years, and there is therefore need for regulating them. Only foreign universities which are accredited in their own countries should be allowed to operate in India.

The committee has noted the Tamil Nadu High Court's judgment which requires all foreign universities to state in their prospectuses that they are not recognised by the UGC. The court had ruled this following complaints that there was confusion about the status of foreign universities which were marketing their courses in India.

To check the growth of "fake" universities, the committee has suggested that running such institutions should be made a cognisable and non-bailable offence. It has also recommended more deterrent prison terms for the guilty. More importantly, it has said that no institution which is not recognised by the UGC should be allowed to use the word "university" or "college."

The committee has also made suggestions about self-financing private universities and the need for a review of the UGC's funding system. Among other things it has proposed that five members of the UGC should be wholetime members, and its total membership be raised from 12 to 15.

The committee was set up in July last year and its members included Dr. G.D. Sharma, Secretary, UGC; Mr. D.R. Meena, Joint Secretary, Department of Legal Affairs; and Mr. Madan Mohan Jha of the HRD Ministry.

Workshop on Info Management

A five-day international training programme on 'Modern Technologies for Information Handling' was recently held at the All-India Institute of Medical Sciences (AIIMS), New Delhi. Inaugurating the programme Prof. M.C. Maheshwari, Dean, stressed utilising computers in information handling, particularly in the field of

medical education, research and patient care.

Prof. Shabat Hussain, head of the department of library science at Aligarh Muslim University (AMU), provided a worldview of the expanding frontiers of information technology.

"The role of libraries as a local resource centre is changing. It is becoming a centre for instant access to global information," he said.

The chief librarian of the institute, Dr. R.P. Kumar, who was the programme co-ordinator, said it had become essential in a modern library to depend on computers for information handling even in day-to-day functioning.

He said the programme which started three years ago in a modest way had become extremely popular among serving professionals.

The training programme was attended by 70 participants comprising librarians, information science specialists, documentalists, R and D scientists, teachers in library science, health scientists and computer professionals from all over the country.

The focus of the training was automation of libraries, on-line searching, CD-ROM and CD-networking, E-mail services, Bar-code technology, multimedia, library networking electronic publishing and internet.

The training programme was organised in collaboration with the Medical Library Association of India.

Awards for Excellence in Distance Education

Two former Vice-Chancellors of the Indira Gandhi National Open University, Prof. G. Ram Reddy and Prof. V.C. Kulandai-swamy, have been selected for the

International Award for Excellence in Distance Education Programmes. Prof. Reddy, who was also the Chairman of the University Grants Commission, has been selected for the award posthumously.

The award will be conferred at Brunei Dar-us-Salam in collaboration with the Pan-Commonwealth Forum of Open Learning.

Also among the awardees are Lord Michael Young and Prof. Donald F. Swift of the United Kingdom. Prof. Swift is being conferred the award posthumously. All four will be conferred the title of Honorary Fellows of the Commonwealth of Learning.

We Congratulate...

1. Dr. Hari Pratap Gautam former Vice-Chancellor of the Banaras Hindu University, who has been appointed Vice-Chairman of the University Grants Commission (UGC).

2. Prof. Radhey Mohan Mishra who has been appointed Vice-Chancellor, Deen Dayal Upadhyay University, Gorakhpur.

3. Prof. Prem Swaroop Saklani who has been appointed Vice-Chancellor of Hemwati Nandan Bahuguna University, Garhwal.

4. Prof. M.V. Nadakarni who has been appointed Vice-Chancellor of Gulbarga University, Gulbarga.

this period. He gave credit for this achievement to the farm scientists and impressed upon them for developing more of post harvest technology to minimise losses caused to the farmers due to insufficient storage and processing facilities.

He applauded the achievements of the CCSHAU on teaching and research fronts, and appreciated the steps initiated for human resource development.

Prof. J.B. Chowdhury, Vice-Chancellor, who presided asked the participants to keep a track on research developments taking place around the globe. He also emphasized on undertaking location specific and need based research.

The 4-week course conducted by the Academy of Agricultural Research and Education Management (AAREM) was attended by 22 agricultural scientists and teachers from ICAR institutes and State Agricultural Universities, including CCSHAU.

Dr. I.J. Singh, Director of the Academy said that in a span of just four years, about 1100 teachers, scientists and officials had been imparted useful trainings on educational technology, research management, computer science and administrative functioning.

News from Agricultural Universities

Refresher Course on Faculty Development

Dr. Harry Andrews, former Director, Michigan State University, USA said that the scientists should undertake problem oriented and need based research, rather than conducting researches on whims. They should also ensure that their research findings reach out to the end users, he added.

Dr. Andrews, who was recently at CCS Haryana Agricultural University alongwith wife Dr. Mary Andrews, Associate Dean, Extension research and international programmes, Michigan State University and four students on a study tour, reiterated that unreasonable researches never achieve desired goals.

Addressing farm scientists at a refresher course on faculty development in research management he impressed upon on exchange of

scientific information among fellow scientists and developing collaborations with other university world over.

Recalling his olden days when, in 1963, he was a Poultry Development Officer in Kangra, Himachal Pradesh, he said India had witnessed sea increase in its agricultural production during

News from UGC

Countrywide Classroom Programme

Between 15th and 21st March, 1999 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the Doordarshan's National Network

from 9.30 to 10.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National Network from 6.00 to 6.30 a.m. two days a week i.e. on Saturdays and Sundays. On DD2 International Programme will be

shown at 11.00 to 12.00 hours on Saturdays only.

Hindi Programmes are being telecast on Mondays to Fridays from 6.00 to 6.30 a.m.

15.3.99

"Genetics in Forest-1"
"The Vernier Gauge"
"A Migrant of Thailand — Cassia Siamea"

16.3.99

"The Great Indian Rat Race"
"Disha-10"

17.3.99

"Browsing the Frontiers of Information Technology-1"

"Early Man & His Science"
"Marginalised Meitei Women"

18.3.99

"Question Time-105"
"Solemnity in Glass"

19.3.99

"An Ancient Indian Sports : Kho-Kho-1"
"In Search of Ethnic Dimension : The Koyas-1"

20.3.99

"Paris New Delhi Video Conference-2"
International Programmes"

21.3.99

"Students and Democracy"

Hindi Telecast

प्रातः 6.00 से 6.30 बजे तक

15.3.99

"कचनार"

16.3.99

"फैलता जहर प्रदूषण का"

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"जन कवि त्रिलोचन : कविता के जनपद में"

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ADMISSION NOTICE

Announces admissions for the session 1999-2000 to the following courses :

(a) Appl. M.Ed. (b) M.Ed. (Spl. Edn.) (c) B.Ed. (Specializations in Spl. Edn./Educational Computing/Vocational Edn.) (d) B.Ed. (Gen.) (e) B.P.Ed. (f) MSW (g) P.G. Diploma in Electronic Journalism & Mass Comm. (h) Advanced P.G.D.C.A. (i) Master of Mass Comm. & Electronic Journalism (j) P.G. Diploma in Photography (k) P.G. Diploma in Yoga (l) M.A. (Appl. & Clinical Psy.) (m) M.A. (Appl. Philosophy) (n) M.A. (Appl. English).

Sl. No.	Cost of Brochure	Last Date	Entrance test Date
(e) - (d)	250/-	20/04/99	18/05/99
(e)	250/-	20/04/99	06/06/99*
(f)	250/-	15/05/99	06/06/99
(g) & (h)	150/-	30/04/99	06/06/99
(i) - (k)	150/-	20/06/99	Admission through merit
(l) - (n)	250/-	20/06/99	Admission through merit

* (Physical Efficiency Test 20/05/99)

How to Apply : Information Brochure alongwith Application Form can be obtained from the affiliated Colleges of the University from March 10, 1999 through Demand Draft. It may also be obtained from the office of the IASE, MJP Rohilkhand University, Bareilly on cash payment or by post by sending a Demand Draft of the cost of Brochure and additional Rs.25/- for postal charges.

Eligibility : (i) For course (a) B.Ed. or equivalent degree from a recognized University and minimum second division in each-

graduation degree and B.Ed. (Theory & Practical separately).

(ii) For course (b) In addition to (i) graduation with Psy./B.Ed. (Spl. Edn.) or B.Ed. (Gen.)

(iii) For courses (c), (d) & (e) Minimum 45% In graduation for General and OBC.

(iv) For courses (f), (g), (h), (j), (k), (l), (m) & (n) Graduation is essential. Other desirable qualifications are -

- for course (f) : Social work/Psychology/Sociology at graduate level.
- for course (g) : Work experience in media/communication organisation.
- for course (h) : English as a subject in class XII is essential.
- for course (j) : Graduate with Inter Science or Photography as a vocational subject.
- for course (l) : Psychology/Human Science/Biology group or B.Ed. (Spl. Edn.)/M.Ed. (Spl. Edn.)
- for course (m) : Philosophy or allied subjects.
- for course (n) : English/General English. For science graduates intermediate with English is essential.

(v) For course (i) : P.G. Diploma in Mass Comm./Electronic Journ. from a recognised Univ./Instit.

D.D. SHOULD BE IN FAVOUR OF FINANCE OFFICER, M.J.P. ROHILKHAND UNIVERSITY, BAREILLY.

Note : All details are given in the Information brochures.

REGISTRAR

BOOK REVIEW

A World of Images

H.K. Kaul*

Prabhat K. Singh. *So Many Crosses*. New Delhi, Pencraft Publications, 1997. Pp. 44. Rs. 90.00.

Prabhat K. Singh's first collection of poems entitled *So Many Crosses* covers a wide canvas including social, political and religious issues. He presents his poems through vivid images and blends them smoothly in the panoramas that he weaves in each poem. He picks up images from the environs in new and preceptive contexts, such as 'chasing butterflies across the purple haze of mountains', 'a desolate virgin village', 'blistered knees and toes', 'honeycomb breasts', 'white vultures', 'wolves and crows eating flesh and picking at the ivory bones'.

Singh is very much concerned about the political and social deterioration. In his poem 'Democracy India, 1996', he highlights the role of vultures in white robes, while as the wolves and crows remain busy eating flesh and picking at the ivory bones. In the poem "Law and Order" he brings to fore the stinking administrative structure in India and in yet another he describes the plight of a helpless patient:

In a shortwhile from then
the welcome quest
was ejected into the space
on a shuttle leaving behind
a pall of gloom
through which glitters
— EMERGENCY SERVICE
like the red flames
of a pyre burning lustily.

A number of poems on the deteriorating social conditions comprise this volume. In the poem on Gaya, he remarks:

*Secretary-General, The Poetry Society (India), L-67A, Malviya Nagar, New Delhi-110 017.

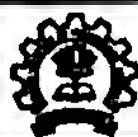
'it's a city', they say
in a jocular vein,
'of river without water,
hills without plants
and men without minds'.

His concerns for the poor are noticed in a number of poems including 'In the Battle for Bread'. The hungry, crouched under a hot tin shed become ghostly as skin becomes dry like autumn leaves and bones like dry twigs. The poor he rightly considers descend and slip into the python's belly.

Poetry demands a good use of images to be made in poems alongwith some rhythm in their presentation among other attributes. Singh's images are no doubt innovative in the 24 poems in this collection. They are not scattered in the text but are present in good measure. We get a glimpse of it in 'Earthquake: Uttarkashi' in the following lines:

Below in the valley
the dogs discovered
under banyan roots
bleeding in the air
the frozen flesh
of a mother and her child
whose tears, still warm,
were held in the dimples
of his maiden smile.

I hope in the years to come Singh is going to use further his world of images and bring them out in new patterns.



INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Powai, Mumbai 400 076.

Advertisement No.M-28/98-99

IIT Bombay invites applications from Indian citizens for faculty positions at the level of ASSOCIATE PROFESSOR in the Department of Mathematics and ASSISTANT PROFESSOR in the following Departments and Centres.

Departments: Aerospace Engineering, Computer Science & Engineering, Electrical Engineering, Humanities & Social Sciences, Mathematics, Mechanical Engineering, Metallurgical Engineering and Materials Science and Physics.

Centre: Industrial Design Centre.

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A good basic degree/diploma in Architecture/Applied Art/Engineering and a Ph.D. degree/P.G. qualification in Design and/or related areas (for Industrial Design Centre only).

Experience: Associate Professor: A minimum of 8 years teaching/research/Industrial experience of which at least 3 years should be at the level of Assistant Professor as on the last date for receipt of applications. Assistant Professor: A minimum of 3 years teaching/research/Industrial experience as on the last date for receipt of applications.

Scale of Pay: (unrevised) Associate Professor - Rs.4500-150-5700-200-8300. Assistant Professor - Rs.3700-125-4950-150-5700.

The prescribed application form along with the Information Sheet containing the areas of specialization for which the staff are required can be obtained by sending a self-addressed, stamped (Rs.5/-) envelope (26 cm x 11 cm) to the Registrar, IIT Bombay, Powai, Mumbai 400 076, on or before 31.3.99. The cover must be superscribed "Request for Application Form for the post of Associate Professor/Assistant Professor" quoting the advertisement number.

Last date for receipt of completed application forms: 12.4.1999.

Date: 1.3.1999.

REGISTRAR

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (November-December 1998)

AGRICULTURAL AND VETERINARY SCIENCES

Agriculture

1. Ambardar, Virendhar Kumar. Management of bacterial wilt of tomato caused by *pseudomonas solanacearum*. (Dr A K Sood), Department of Plant Pathology, Himachal Pradesh Krishi Vishwavidyalaya, Palampur.
2. Kamlesh Kumar. Analysis of breeding records of a buffalo herd. Department of Agriculture, Punjab Agricultural University, Ludhiana.
3. Nagare, Prakash Kisanrao. Genetic analysis of tetraploid x diploid F1 hybrids in watermelon (*citrullus lanatus*) (Thumb Mansi) (Dr P N Kale), Department of Agriculture, Mahatma Phule Krishi Vidyapeeth, Ahmednagar.
4. Patil Sarjerao Pandurang. Nitrogen enrichment of Press Mud Cake (PMC) and its effects on yield and quality of onion grown on vertisol. (Dr S P Kale), Department of Agricultural Chemistry and Soil Science, Mahatma Phule Krishi Vidyapeeth, Ahmednagar.
5. Patil, Shankarrao Shamrao. Studies on the feeding status of dairy animals in the milkshed area of Kolhapur district and suggesting a suitable feeding strategy. (Dr I G Chavan), Department of Agriculture, Kolhapur.
6. Rajiv Kumar. Investigations on epidemiology and management of leaf blight disease of ragi *Eleusine coracana* (L) Gaertn caused by *helminthosporium nodulosum* Berk and Curt. Department of Agriculture, Birsa Agricultural University, Ranchi.

Biochemistry

1. Chakraborty, Debashis. In vitro maturation and in vitro fertilization of caprine oocytes and its transfer in black Bengal goats. Department of Biochemistry, Birsa Agricultural University, Ranchi.

BIOLOGICAL SCIENCES

Botany

1. Cherian, Sam. Salinity tolerance and in vitro propagation studies on *Suaeda nudiflora* and *Avicennia marina*. (Dr M Reddy), Department of Botany, Bhavnagar University, Bhavnagar.
2. Gopalakrishnan C. Studies on the entomopathogenic fungus *paecilomyces farinosus* (Holmskiöld) Brown and Smith for the control of cabbage diamondback moth (*Plutella xylostella* L). (Dr D Anusuya and Dr K Narayanan), Department of Botany, Bangalore University, Bangalore.
3. Nagesh, N. In vitro morphogenetic studies and cytochemical studies in a few cultivars of *anthurium andreanum* Lind. (Dr D G Krishnappa and Dr Devinder Prakash), Department of Botany, Bangalore University, Bangalore.
4. Pandoh, Anuradha. Algal flora of paddy fields of Jammu. (Prof Shashi Kant), Department of Botany, University of Jammu, Jammu.
5. Sharad Kumar Vishwakarma. Influence of different

sources and levels of sulphur on growth productivity, quality and economic viability in soybean (*glycine max*) (M Grill). (Dr R C Maurya), Department of Botany, Rani Durgavati Vishwavidyalaya, Jabalpur.

6. Sinha, Amita. Studies on water pollution of Ban-Ganga at Katra (J&K). (Prof Shashi Kant), Department of Botany, University of Jammu, Jammu.

7. Sultana, Rabiya. Arbuscular mycorrhizal fungal association in leafy vegetables. (Prof C Manoharachary), Department of Botany, Osmania University, Hyderabad.

8. Vijaya Kumar, K. A contribution to the foliar epidermology architecture and anatomy of some boraginaceae. (Prof B Hanumantha Rao), Department of Botany, Andhra University, Waltair.

Life Sciences

1. Deepthi Verma. Regulatory and enzymological studies of sulphur metabolism in cyanobacteria *Nostoc punctatum* and *Nostoc commune*. (Dr Saxena and Dr S K Shrivastava), Department of Life Sciences, Rani Durgavati Vishwavidyalaya, Jabalpur.

2. Singh, Mayengbam Joychandra. Limnological studies of pumlen lake - A major freshwater wetland of Manipur. (Prof H Tombi Singh), Department of Life Sciences, Manipur University, Imphal.

Microbiology

1. Moslem, Abu Samaha Ahmed Soliman. Studies on phosphate solubilizing yeast and filamentous fungi. (Dr H H Patel), Department of Microbiology, Bhavnagar University, Bhavnagar.

Zoology

1. Rao, Nageswara N. Haemoglobin levels among school children in Visakhapatnam. (Dr G Gnanamani), Department of Zoology, Andhra University, Waltair.

2. Sailu, B. Comparative studies of bile tolerance, cholesterol assimilation and bacteriocin production among the strains of *Lactobacillus acidophilus*. (Prof J D Goud), Department of Zoology, Osmania University, Hyderabad.

3. Surender, M. Mode of action of praziquantel and mebendazole on few physiological aspects of cestode parasite of dog, *Multiceps multiceps*. (Dr G Ramakrishna), Department of Zoology, Osmania University, Hyderabad.

4. Vinukonda, V R Babu. Population dynamics of helminth parasites of domestic fowl and some histochemical studies on the host. (Prof V Rajeshwar Rao), Osmania University, Hyderabad.

EARTH SYSTEM SCIENCES

Earth Sciences

1. Paul, Ajay. Source parameters of Uttarkashi earthquake of October 19, 1991 by wave-form modelling. Department of Earth Sciences, University of Roorkee, Roorkee.

Geology

1. David, K. Lamprophyres of Prakasam and Khammam districts of Andhra Pradesh. (Prof M Madhavan), Department of Geology, Osmania University, Hyderabad.

2. Devi, Rajkumari Mrinalinee. Studies on geomorphology and fluvio depositional analysis of the upper catchment area of the Imphal river, Manipur. (Dr A D Patgiri), Department of Geology, Gauhati University, Guwahati.

3. Paramata Saradhi, Mineralogy and geochemistry of charnockites suite of rocks from eleswaram in the eastern ghats granulite belt, India. (Prof A T Rao), Department of Geology, Andhra University, Waltair.

4. Ramesh, M. Study of gold, uraninite and sulphide bearing quartz-pebble conglomerates of Kalasapura area, Chikmagalur district, Karnataka, India. (Dr K S Anantha Murthy), Department of Geology, Bangalore University, Bangalore.

5. Reddy, K H Madhava. Geological, benefical and surface environmental studies of Kalyadi Sulphide ores, Hassan district, Karnataka, India. (Dr B S Shiva Kumar), Department of Geology, Bangalore University, Bangalore.

Geo-physics

1. Rao, V Purushotham Investigation of Gamma ray method for geological mapping. (Prof N Venkat Rao), Department of Geo-physics, Osmania University, Hyderabad.

Meteorology

1. Krishna Mohan, P S. Some meso meteorological aspects of air quality modeling studies on coastal environments. (Prof K P R Vittal Murty), Department of Meteorology, Andhra University, Waltair.

ENGINEERING SCIENCES

Architecture and Planning

1. Singh, Nalini. Integrated rural development with special reference to Bijnor distt, U.P. Department of Architecture and Planning, University of Roorkee, Roorkee.

Biotechnology

1. Vani Chandra, Studies on yeast lipids used as lubricant additives. Department of Biotechnology, University of Roorkee, Roorkee.

Civil Engineering

1. Gupta, Rajeev. Aerodynamic study on tall composite tower. Department of Civil Engineering, University of Roorkee, Roorkee.

Earthquake Engineering

1. Mohd Arif. Simulation of the mechanical properties of ferro-cement plates. Department of Engineering, University of Roorkee, Roorkee.

2. Prakash, Suraj. Finite element dynamics analysis of axisymmetric structures. Department of Engineering, University of Roorkee, Roorkee.

Electrical Engineering

1. G Vijaya. Artificial neural network based on ECG classification. Department of Electrical Engineering, University of

Roorkee, Roorkee.

2. Goel, P S. Fault tolerance and analytical redundancy in spacecraft attitude control systems. (Dr P Narayana Reddy and Dr K Kasturirangan), Department of Electrical Engineering, Bangalore University, Bangalore.

3. Kulkarni, P K. Ambulatory monitoring and analysis of ECG signals. Department of Electrical Engineering, University of Roorkee, Roorkee

Electronic and Computer Engineering

1. Mohan, Suresh Chandra. A study of trellis-coded QAM on ISI channels. Department of Electronic and Computer Engineering, University of Roorkee, Roorkee.

Mechanical Engineering

1. Karwa, Rajendra. Investigation of thermohydraulic performance of solar air heaters having artificially roughened absorber plate. Department of Mechanical Engineering, University of Roorkee, Roorkee

Metallurgy and Materials Engineering

1. Tiwari, Shesh Narayan. Investigations hot corrosion of some Fe-Ni and Co-Base super-alloys in Na₂SO₄/V₂O₅ environment under cyclic conditions. Department of Metallurgy and Materials Engineering, University of Roorkee, Roorkee.

Technology

1. Srivastava, Neerja. Influence of salinity on plant metabolism : Some physiological and biochemical changes in peanut seedlings (*Arachis Hypogaea*) with particular reference to cell wall proteins. Department of Technology, University of Roorkee, Roorkee.

MATHEMATICAL SCIENCES

Mathematics

1. Bhattacharya, Debasish. Some generalizations of realcompact spaces. (Dr R N Bhaumik), Department of Mathematics, Tripura University, Agartala.

2. Biradar, K S. Numerical solution of some flow problems and simulation of two phase flow systems. Department of Mathematics, University of Roorkee, Roorkee.

3. Chandrashekhar, H. Algebraic coding theory based on farey fractions and quaternions. (Dr M Nagaraj), Department of Mathematics, Bangalore University, Bangalore.

4. Rao, M Paramathma. Approximation of real numbers by rationals using tribe and co-tribe of farey fraction. (Dr M Nagaraj), Department of Mathematics, Bangalore University, Bangalore

Statistics

1. Rama Sankar, C V. Parametric life tables : Applications of reliability models (Prof P V S Sarma), Department of Statistics, Andhra University, Waltair.

PHYSICAL SCIENCES

Bio Chemistry

1. Iyyapu Krishna Mohan. Investigation into the role of L-arginine, nitric oxide and polyunsaturated fatty acids in diabetes mellitus. (Dr U N Das and L V Prasad), Department of Bio

chemistry, Osmania University, Hyderabad.

2. Ratnavathi, Chamarthy Venkata. Substrate suitability, resistance to mould damage and aflatoxin elaboration in grain sorghum (*Sorghum bicolor*(L.) Moench). (Dr B Sashidhar Rao), Department of Biochemistry, Osmania University, Hyderabad.

Chemistry

1. Ahluwalia, Rajeev. Some problems in the kinetics of phase transition. (Dr Sanjay Puri), Department of Chemistry, Jawaharlal Nehru University, New Delhi.

2. Anuradha, G H. Synthesis and structural studies on transition metal complexes of some 2-substituted benzimidazoles. (Dr A V Chandrapal), Department of Chemistry, Osmania University, Hyderabad.

3. Anuratha, M V. Studies on ultrasound promoted reactions for peptide synthesis. (Dr B Ravindranath), Department of Chemistry, Bangalore University, Bangalore.

4. Bagyalakshmi, M V. Studies on ring opening metathesis polymerization with reference to synthesis of some high performance elastomers. Department of Chemistry, University of Roorkee, Roorkee.

5. Bharati, Nidhi. Preparation and characterization of some rare earth (III) Iron-(III) mixed oxides. Department of Chemistry, University of Roorkee, Roorkee.

6. Chandra, Sudeshna. Physico-chemical studies on synthetic macrocycles and their analytical applications. Department of Chemistry, University of Roorkee, Roorkee.

7. Desai Shobha Raosaheb. Nitrogen heterocycles of pharmacological interest. (Dr S C Bannur), Department of Chemistry, Karnatak University, Dharwad.

8. Dev, Santosh. Physico chemical studies of room temperature and organic compounds. (Dr K Ismail), Department of Chemistry, North Eastern Hill University, Shillong.

9. Eraqi, Mohd Talaeian. Role of metal ions on aerobic and anaerobic biodegradability of waste water. Department of Chemistry, University of Roorkee, Roorkee.

10. Gupta, Kartick. Studies on development of polymer based monolithic dispensers for controlled release of pheromones. (Dr M Yaseen), Department of Chemistry, Osmania University, Hyderabad.

11. Hajra, Anup Kumar. Chemical constituents of diospyros peregrina and other medicinal plants of Tripura. (Prof B Dinda), Department of Chemistry, Tripura University, Agartala.

12. Jayashree BS. Reversal of drug resistance in cancer cells and bacteria by 2-chlore-n-substituted phenoxazine chemosensitizers. (Dr Thimmalah K N), Department of Chemistry, University of Mysore, Mysore.

13. Kumari Harsha. Chemical and biochemical studies on some leguminous seeds. Department of Chemistry, Rani Durgavati Vishwavidyalaya, Jabalpur.

14. K V Lavanya. Complex equilibrium of biological importance apectation of calcium (II) and magnesium (II) complexes of L Arginine and L Histidine in micellar media - a computer augmented modelling study. (Dr G Nageswara Rao), Department of Chemistry, Andhra University, Waltair.

15. Krishna, K. Hydrotalcite supported palladium catalysts:

metal dispersion and phenol hydrogenation activity. (Dr S Narayanan), Department of Chemistry, Osmania University, Hyderabad.

16. Kumar, Prashant. Synthesis, characterization and catalysis by pentais, titanium and vanadium silicates. Department of Chemistry, University of Roorkee, Roorkee.

17. Maiti, Samir Kumar. Support effect on catalytic functionalities of hydrotreating catalysts. Department of Chemistry, University of Roorkee, Roorkee.

18. Majumdar, Kanak Kanti. Designing novel organotin reagents towards urethanes, polyurethanes and chiral homoallylic alcohols. (Dr S Narayanan), Department of Chemistry, Osmania University, Hyderabad.

19. Pal, Shashwati. Synthetic studies on HIV-protease inhibitors, martinellina and B-hydroxyamino acids of vancomycin. Department of Chemistry, Osmania University, Hyderabad.

20. Pratibha Patel. Synthesis and structural studies of metal complexes with hydrazones and other related ligands. (Dr D B Mishra), Department of Chemistry, Rani Durgavati Vishwavidyalaya, Jabalpur.

21. Ramasita Devi K. Physico-chemical studies and biological applications of ternary metal complexes of imidazoles and benzimidazoles. (Dr K L Omprakash), Department of Chemistry, Osmania University, Hyderabad.

22. Shanmugam, M. Studies on the biomedically and industrially important metabolites of Indian marine algae. (Dr A K Siddhanta), Department of Chemistry, Bhavnagar University, Bhavnagar.

23. Sen, Nandita Subhasis. Chemical investigation and evaluation of certain plant derived materials as petroleum substitute. (Dr G K Ghosal), Department of Chemistry, Nagpur University, Nagpur.

24. Sinha, Dipak. Radiation induced modification on some dielectric solids. (Dr K K Dwivedi), Department of Chemistry, North Eastern Hill University, Shillong.

25. Suresh Babu Agarwal. Effect of soil environment on the efficiency of azotobacter to fix atmospheric nitrogen in cereal fodder oat (*Avena Sativa* Linn) (Dr R K Tiwari), Department of Chemistry, Rani Durgavati Vishwavidyalaya, Jabalpur.

26. Thejavathi, R. Stationary phase selection and modification for chromatographic separation of natural products. (Dr B Ravindranath), Department of Chemistry, Bangalore University, Bangalore.

Physics

1. Alexander David J J. Thermally stimulated processes in neodymium doped alkali halide crystals. (Dr P Veeresham), Department of Physics, Osmania University, Hyderabad.

2. Prabhu, C Ramachandra. Phase transitions in liquid crystalline benzylidene anilines - A dilatometric study. (Prof V G K M Pisipati), Department of Physics, Nagarjuna University, Nagarjunanagar.

3. Pradip Kumar. Investigation on the properties of the N(958) meson. (Dr P N Upadhyay), Department of Physics, Vinoba Bhave University, Hazaribag.



INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY

Powai, Mumbai 400 076.

Advertisement No.M-22/98-99

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Programmes	+ Minimum Admission Requirement
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MSc (Applied Geology, Applied Statistics & Informatics, Biotechnology, Chemistry, Mathematics, Physics)	: BA/BSc with first class must have passed Mathematics at 10+2 level. Applicant for Biotechnology, must have Chemistry as one of the subjects at the 2nd year of BSc
MTech (Aerospace Engg, Biomedical Engg, Chemical Engg, Civil Engg, Computer Sc & Engg, Corrosion Sc & Engg, Geospatial, Energy Systems Engg, Electrical Engg, Environmental Sc & Engg, Industrial Engg & Operations Research, Mechanical Engg, Metallurgical Engg & Materials Science, Reliability Engg, Systems & Control Engg)	: BE/BTech/BSc(Engg)/MSc with valid GATE score or 2yrs relevant work experience for sponsored candidates or Equivalent examination from professional institutions with First Class, valid GATE score & 2 yrs relevant work experience. MBBS Degree holders must clear MC/AIIMS Entrance Test for admission to Biomedical Engg.
MTech & PG DIT in Information Technology	: BE/BTech/BSc(Engg)/MSc/MCA with First class and valid GATE score in CS or valid GATE score in any discipline/ 2 years relevant experience in the field of Information Technology and D'level NCST examination.
PhD (In all Science & Engg disciplines mentioned above; Economics, English, Philosophy, Psychology, Sociology offered by Humanities and Social Science Dept, Management disciplines offered by School of Management).	: ME/MTech/MPhil/MMS or BE/BTech/MSc with first class/ MA/MCom with 55% marks & a valid GATE score/CSIR/UGC/NBHM Fellowship/2yrs relevant work experience for sponsored candidates.

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A few fellowships carrying Rs. 7000/- per month and Rs. 12000/- per month are available to the students of MTech/ PhD programmes in various Departments/Groups.

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Fee for Application Form, Information Brochure & Processing (Rs.200/- for MSc programme & Rs.300/- for all other programmes for General category and Rs.100/- for SC/ST candidates for all programmes on production of caste/tribe certificate) can be paid by sending a Demand Draft in favour of Registrar, I.I.T. Bombay along with a self-addressed/ stamped (Rs.15/-) envelope of size 27 cms x12 cms. Each programme requires a separate application form.

Programme	Issue of forms	Last date for issue of forms	Last date for receiving forms
MTech	15.3.1999	12.4.1999 (post) 19.4.1999 (counter)	19.4.1999 (at counter & by post)
Other programmes	22.3.1999	23.4.1999 (post) 7.5.1999 (counter)	07.05.1999 (at counter & by post)

Applications from candidates desirous of pursuing Ph.D. Programmes are accepted round the year. Such candidates may directly write to the Deputy Registrar (Academic) or the Head of the concerned Department.

+Individual programme may have additional requirements. For details contact Deputy Registrar (Academic) or see internet web site of IIT Bombay - <http://www.iitb.ernet.in>

Deputy Registrar (Academic), I.I.T. Bombay, Powai, Mumbai 400076.

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Technology Bhavan, New Mehrauli Road, New Delhi-110 016

SERC VISITING FELLOWSHIPS 1998-99

PREAMBLE

Department of Science & Technology, through the Science and Engineering Research Council (SERC) promotes research in newly emerging and front line areas of science and engineering. The SERC has identified challenging/thrust areas in various disciplines of Life, Chemical, Physical Engineering, Mathematical and Earth & Atmospheric Science. Scientists and technologists even though engaged in research for a long time need to be exposed to further developments and training in well established national research laboratories and academic institutions in the country. At present, adequate opportunities of this nature which are time bound with specific purpose are not available to the scientists, SERC, has introduced a scheme called "SERC Visiting Fellowship".

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APPLICATIONS ARE INVITED FROM INDIAN NATIONAL FOR THE AWARD OF FELLOWSHIPS UNDER THE SCHEME "SERC VISITING FELLOWSHIPS".

ELIGIBILITY : 1. The applicant should possess Masters degree in Engineering/Technology or M.D. in Medicine or a Ph.D. in Science. 2. The candidate should be a scientist/technologist and hold regular position in recognized science and technology institution/colleges/university and should be actively engaged in research work in newly emerging and front line areas. 3. The candidate should be less than 50 years.

SPONSORSHIP : 1. Candidate must be officially sponsored i.e. application should be formally forwarded by their employers/Head of the Institutions with the commitment to depute them for training/research under "SERC Visiting Fellowships Scheme". 2. Nomination from the heads of selected national institutions and eminent scientist/experts would also be entertained.

DETAILS OF THE FELLOWSHIP : 1. The candidate should themselves correspond with the research organisations/laboratory for their placement. These institutions should be recognized outstanding institutions/laboratories where major research & development projects are in progress. 2. The fellowship is awarded for period of 3 months and the training period should be of that duration and the training should be preferably completed in one visit. 3. The fellowship awarded will be Rs. 6000/- per month plus Rs. 2,000/- per month (contingency) which will be reimbursed through the parent institution. 4. A sum of Rs. 2,000/- per month will be provided to the host institution for meeting the overhead expenses including infrastructural facilities (laboratory facility with basic chemicals and glassware and secretarial facility). 5. Cost of one time to and fro rail travel expenses by the entitled class in the parent institution (1st Class/II AC/III AC) from the parent organisation to the proposed institute of work will be reimbursed. DA for the journey and internal travel will have to be borne by the Parent institution/employee. 6. Requests for additional grant for a specific purpose like experimental training/field survey etc. will be considered on its merit. 7. Rules governing payment of salary,

seniority, leave, medical, gratuity, GPF and pension etc of the institution to which the fellow belongs would continue to be applicable. However, no liability under these Rules will be borne by Department of Science & Technology. 8. The fellowship should be availed within a period of 9 months from the date of award of the fellowship. Failure to do so would render them to forfeit the award. 9. The candidate chosen for the fellowship would be required to submit a detailed report on the work done during the fellowship to DST in a prescribed format.

Candidate may submit their application typed on A4 size plain paper (10 copies) with single enclosures in the format given within 45 days from the date of publication of this advertisement to : Head, SERC Division, Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110 016.

APPLICATION FOR SERC VISITING FELLOWSHIPS

1. Name of applicant, designation and address of the Institute. :
2. Date of birth and age. :
3. Academic qualification. :
4. Details of the present and past employment. :
5. Summary of the work done on current area of research. :
6.
 - a) No. of research publications in last five years (attach list of 10 best publications giving Sl. No., title, journal name etc). Enclose reprints of not more than three publications which you consider best. :
 - b) No. of Ph.D. students guided in the last five years. :
 - c) Details of research projects undertaken, if any, during the last five years. :
 - d) Details of earlier training/fellowship :
7. Details of proposed fellowship
 - a) Area of research. :
 - b) Brief summary of training and its importance. :
 - c) Proposed place of training (enclose consent of the eminent Scientist/Host Institution where training is to be undertaken). :
 - d) Proposed duration. :
8. Ongoing S&T projects (mention Ref. No., title, duration, cost and funding agency).
9. Name & address of two Experts/Referees in your area of specialization. :
10. Any other information not covered above. :

Place :

Date :

(Signature of applicant)

STATEMENT FROM THE PRESENT EMPLOYER

(This should mention about the continuity of the employment, deputation terms like leave, payment of salary etc. during the fellowship).

davp 98/577



CENTRAL INSTITUTE OF FISHERIES EDUCATION

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ADMISSION NOTICE 1999-2000

All India Competitive Examination for Admission to Ph.D. Programme for the academic session 1999-2002 commencing from 01.09.1999 will be held on 5th July 1999 at Mumbai :

S.No.	Name of Discipline	No. of Seats
1.	Fishery Resources Management	5
2.	Inland Aquaculture	5
3.	Mariculture	5
Total		15

(Out of which 2 seats are reserved for SC & 1 for ST)

ELIGIBILITY QUALIFICATIONS :

Masters degree in Fishery Resources Management (FRM)/Inland Aquaculture (IAC)/Aquaculture/Mariculture/Industrial Fisheries/Marine Biology/Coastal Aquaculture (OR) Master of Fisheries Science (OR) Diploma in Fisheries Science (D.F.Sc.) provided candidate holds a Bachelor's degree in Biological Science and has 2 years of experience (either prior to or obtaining D.F.Sc) in Fisheries development work, as evidenced by publications (OR) M.Sc. in Fish and Fisheries and related disciplines with at least 60% marks or with OGPA of 7.5 out of 10.00 or 3.75 out of 5.00 or 3.00 out of 4 or 2.25 out of 3 (for SC/ST candidates 55% marks or with OGPA of 7.00 out of 10 or equivalent OGPA in 5, 4 and 3 point scale). The duration of Ph.D. course for the candidates with B.F.Sc. and M.F.Sc. stream (4+2 years) will be 3 years (6 semesters). However for others it will be 4 years (8 semesters) of which one year will be for remedial courses in fisheries.

AGE LIMIT :

The minimum age limit for admission shall be 22 years as on 31.08.1999. No relaxation in age limit is allowed.

There is a provision for Awarding institutional fellowship to selected candidates @ Rs. 4400/- p.m.

Prescribed Application Form alongwith information Bulletin for the Entrance Examination and Admission for the Ph.D. Programme can be obtained from the Sr. A.O./REGISTRAR, CIFE, Seven Bungalows, MUMBAI-400 061. Request for information Bulletin and Application Form to be sent by post may be made upto 23.05.1999. But may also be obtained in person at the CIFE till 30.05.1999. When given in person at the CIFE, the charge for the same will be Rs. 35/- in the form of crossed Demand Draft but if it is to be sent by post a crossed Demand Draft of Rs. 50/- will be required, to be drawn in favour of "ICAR UNIT/CIFE, MUMBAI, STATE BANK OF INDIA, VERSOVA BRANCH, MUMBAI-400 061". Request for this through Cheque/Postal Order/VPP will not be entertained. The Admit Card for the Entrance Examination to the eligible candidates will be sent by post. Any postal delay in the Admit Card reaching the candidates will not be the responsibility of the CIFE. The last date of receipt of filled in Application Form is 30.05.1999.

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Union Catalogue of Periodicals	Serials : Petroleum & Natural Gas	INTERNET E-Mail Services
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Membership Rates

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For membership details, contact : **Director, Delhi Library Network, 40, Max Mueller Marg, Lodi Estate, New Delhi-110 003, Phone : 4619325, 4619431 Ext. 312; Telefax : 011-4619325. E-Mail : hkkaul@delnet.ren.nic.in**

The recent publication from DELNET

LIBRARY AND INFORMATION NETWORKS :

The proceedings of the National Convention on Library and Information Networking 1998 (NACLIN 98)

Edited by H.K. Kaul

387 p., 1999; Rs. 550/-. DELNET member-libraries will be given 30% discount. All other Libraries will get 20% special discount. Postage and packing free.

Send your orders to :

**The Secretary, Delhi Library Network, 40, Max Mueller Marg,
Lodhi Estate, New Delhi-110 003.
Fax No. 4619325**



Medical Teachers Wanted Immediately for NEPAL MEDICAL COLLEGE

Nepal Medical College is the first charitable health institution in Kathmandu established by Nepalese medical doctors, engineers, academics and management professionals and commenced first batch MBBS programme from December 1997. Two batches of 75 students are studying MBBS. Applications are invited from experienced medical teachers in (1) Human Anatomy (2) Clinical Physiology (3) Clinical Pharmacology (4) Pathology (5) Microbiology (6) Community Medicine (7) Clinical Biochemistry (8) Radiology (9) Anaesthesiology (10) Forensic Medicine. First phase 100 bed Nepal Medical College Teaching Hospital is being run by the college and it being planned for upgrading to 250 beds by November 1999.

Eligibility Criteria for Medical Teachers :

Basic requirements and broad principles for appointment of teachers with MBBS and MD/MS Medical qualifications to different levels are as follows :

1. Professor :

- (a) Should have postgraduate degree or equivalent qualification in the respective subject together with teaching/working experience of three years as Associate professor or equivalent post, and
- (b) Should have two original research and two original articles published in national/international journals as the main author at the level of Associate Professor.

2. Associate Professor :

- (a) Should have postgraduate degree or equivalent qualification in the respective subject together with teaching/working experience of four years as Assistant Professor or equivalent post, or seven years of teaching/working experience as Lecture or equivalent post and, (b) Should have minimum of two original research as main author and two other publications as main/co-author in national/international scientific journal at the level of Assistant Professor.

3. Assistant Professor :

- (a) Should have postgraduate degree or equivalent qualification in the respective subject together with teaching/working experience of three years as Lecturer or equivalent posts, and (b) Should have two original publications as the main author in national/international scientific journal.

4. Lecturer :

Should have postgraduate degree or equivalent qualification in the respective subject.

Note :

- (i) Those without MBBS and MD/MS qualifications may not apply.
- (ii) Research and publications done in to acquire postgraduate qualification will not be taken into consideration as a substitute for publications required.

Monthly Salary :

For Lecturer : Indian Rupees Ten Thousand; for Assistant Professor : Indian Rupees Fourteen Thousand; for Associate Professor : Indian Rupees Eighteen Thousand and for Professor : Indian Rupees Twenty Two Thousand per month. (All figures after income tax deduction).

Facilities :

Free one bed room accommodation with sharing of other facilities with flatmates. Airfare with 20 Kg. extra luggage on joining, once return fare for the faculty only every academic year, three vacations (total 60 days) per academic year and "Dashain" Puja allowance after completion of six month service. Those eager to join immediately or within May 1999 may fax curriculum vitae by including their contact telephone or fax or email immediately. Forward formal application through proper channel enclosing photocopies of essential academic-testimonials, publications and recent passport photographs to the Executive Chairman, Nepal Medical College, P.B. No. 13344 Attarkhel, Jorpati VDC, Kathmandu, Fax No. 977-1-473118, Ph. No. 471875, 486009, email:nmc@mos.com.np Website:www.nepalonline.net/nmc

CLASSIFIED ADVERTISEMENTS

CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE FOR WOMEN NUVEM, SALCETE, GOA-403 604

Applications with full bio data are invited for the following posts so as to reach the undersigned within 15 days from the date of publication of this advertisement, for the year 1999-2000.

Applications must be accompanied by certified copies of mark sheets of all the examinations from SSC onwards. Those already employed, shall forward their applications through proper channel and shall account for breaks if any in their academic career.

Category of posts : OPEN/CLEAR VACANCY

1. Lecturer in Commerce (specialisation in Accountancy) : 1 post, Full time
2. Lecturer in Psychology (special area of specialisation : Experimental and Physiology Psychology) : 1 post, Full time
3. Lecturer in Mathematics : 1 post, Part time
4. Lecturer in Zoology : 1 post, Full time (for a period of 90 days)

ESSENTIAL QUALIFICATIONS :

A Master's degree of a recognised University in the relevant subject with eight/six papers

and at least 55% marks or its equivalent grade and good academic record.

Candidates applying for Lecturer's post must have passed the Eligibility test for lecturership conducted by the UGC, CSIR or similar test accredited by the UGC. However, if such candidates are not available or found suitable, general category candidates will be appointed on temporary basis and the appointment will not be confirmed till the candidate passes the NET/SET.

SCALE OF PAY : Rs. 2200-75-2800-100-4000 plus admissible allowances as per rules.

Part time : Honorarium of Rs. 1,500/- only (9-11) periods

TERMS AND CONDITIONS of service are those laid down by the Goa University/ Directorate of Education, Government of Goa and other competent authorities.

Sr. Margaret Angela A.C.
PRINCIPAL

C.E.S. COLLEGE OF ARTS & COMMERCE

CUNCOLIM-SALCETE-GOA-403 703

Applications are invited for the following posts of Lecturers :

1. History — 1 post
2. Sociology — 1 post

ESSENTIAL QUALIFICATIONS :

- 1) Masters Degree in the relevant subject

(Minimum Six Papers) with at least 55% marks or equivalent grade and Good academic record i.e., at least Second Class at graduation, with the same subject as at Postgraduation.

ii) Besides fulfilling above qualifications, candidates should have cleared an eligibility test for Lecturers conducted by UGC/CSIR or State Eligibility Test such as NET/GATE/SET or equivalent.

PAY SCALE :

Scale of Pay and terms and conditions of service are as laid down by the Goa University/ Govt. of Goa and other competent authorities.

Persons already in service must apply through proper channel. Any break in service/ academic career must be accounted for.

Interested candidates may apply giving full details of academic qualifications from S.S.C.E. onwards clearly indicating subjects offered, marks scored, class/division obtained at all public examinations, teaching experience, address, date of birth etc.

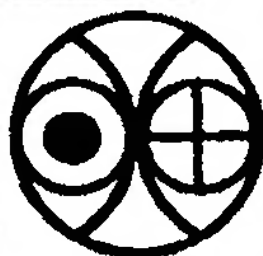
Certified copies of statements of marks/certificates of Public Examinations and testimonials should be enclosed.

Applications completed in all respects should reach the undersigned within 15 days from the date of publication of this advertisement.

**POSTS WILL BE FILLED PROVIDED
WORK-LOAD WARRANTS.**

D.L. Nalk
PRINCIPAL

भौतिक अनुसंधान प्रयोगशाला
(अंतरिक्ष विभाग की युनिट, भारत सरकार)
नवरंगपुरा, अहमदाबाद-380 009 भारत
तार : "रिसर्च" फेक्स : (91)-079-6560502
टेलेक्स : 0121-6397 दूरभाष : 462129



PHYSICAL RESEARCH LABORATORY

(A UNIT OF DEPT. OF SPACE, GOVT. OF INDIA)
NAVRANGPURA, AHMEDABAD-380 009, INDIA.
CABLE : "RESEARCH" FAX : (91)-079-6560502
TELEX : 0121-6397 TELEPHONE : 462129

PHYSICAL RESEARCH LABORATORY Ahmedabad-380 009

The Physical Research Laboratory awards, every two years, the prestigious Shri Hari Om Ashram Prerit Dr. Vikram Sarabhai Research Awards and the PRL Award. The former awards were established from funds kindly provided by Pujya Shri Mota of Hari Om Ashram of Nadiad while the latter was instituted from the Aruna Lal Endowment Fund established by Prof. Devendra Lal, Honorary Fellow and former Director of PRL. The awards consisting of a cash prize of Rs. 25,000/- will be made to outstanding Indian Scientists, who are below 45 years of age, on 1st January 1999 for their original work in the following fields :

A. Hari Om Awards, one each in the following four disciplines :

- 1) Space Sciences (including Astronomy, Astrophysics, Planetary and Atmospheric Sciences).
- 2) Space Applications (in the areas of Meteorology, Hydrology, Remote Sensing and related ground truths).
- 3) Electronics, Informatics, Telematics and Automation.
- 4) Systems Analysis or Management including non-linear, non-equilibrium systems in natural and social sciences and technology.

B. PRL Award, one award in

innovative theoretical and/or experimental studies in dynamic earth and planetary systems including areas of oceanography, atmospheric sciences and meteorology.

Although the overall work of the candidates would be taken into account, the work done in India would be given prime consideration.

The candidate should have to his/her credit at least one or more of the following achievements :

- 1) Outstanding contributions in scientific research.
- 2) Successful development and adaptation of new and important technology.
- 3) Planning, development and implementation of systems in the context of science and technology.

The selections for the year 1999 will be completed by the first quarter of the year 2000 and the awards presented on 12th August 2000.

The last date for receiving nomination is September 15, 1999. Nominators are required to send 6 copies of a brief write up (two page note) summarising the contributions and achievements of the candidate together with his/her biodata (6 copies) in a cover marked 'confidential', addressed to the Director, Physical Research Laboratory, Navrangpura, Ahmedabad-380 009.



IGNOU

INDIRA GANDHI NATIONAL OPEN UNIVERSITY
Maidan Garhi, New Delhi-110068.

ADMISSION NOTICE

Invites Applications for admission to the following programmes

COMMENCING FROM JULY 1999 SESSION

Sl. No.	Name of the Programme	Course Code	Eligibility	Min. Age	Medium of Instruction
1.	Certificate in Computing	CIC	10+2 or its equivalent	—	Hindi/English
2.	Bachelor's Degree Preparatory Programme	BPP	Non 10+2	18 yrs.	Hindi/English
3.	Certificate in Teaching of English	CTE	Graduation or 10+2 with 2 yrs teaching experience	—	English
4.	Certificate in Guidance	CIG	Teachers of recognised Instt. or Pass in matriculation	21 yrs.	English/Hindi
5.	Certificate in Food & Nutrition	CFN	No formal qualification	18 yrs.	English/Hindi & some Regional languages
6.	Certificate in Disaster Management	CDM	10+2 or its equivalent	—	English

GENERAL INFORMATION:

The Students Handbook & Prospectus can be obtained from all the Regional Directors, IGNOU whose addresses are given below or from SR&E Division, IGNOU Hqs. on payment of **Rs. 10/- (Rupees Ten only)** either in cash or by IPO/Demand Draft drawn in favour of IGNOU payable at the city where Regional Centre is situated **plus Rs. 50/-** towards postal charges if required by post.

LAST DATES:

- i) Supply of Student Handbook by post 10.05.1999
- ii) Submission of forms at the concerned Regional Centre 17.05.1999

ADDRESSES OF THE REGIONAL DIRECTORS, IGNOU REGIONAL CENTRES:

■ 268-C, Pitru Ashish, Near Avani Flats, Ishwar Bhawan Road, Navrangpura, **AHMEDABAD-380009**. ■ No. 293, 39th Cross, VIII Block, Jayanagar, **BANGALORE-560082**. ■ E-7/649, Arera Colony, Near Bus Stop No. 11, **BHOPAL-462016**. ■ 222/1, Shastri Nagar, Unit-IV, **BHUBANESWAR-751007**. ■ Bikash Bhawan, 4th Floor, North Block, Bidhan Nagar, Salt Lake, **CALCUTTA-700091**. ■ CIT Campus, Taramani, **CHENNAI-600013**. ■ Mamangalam, Palanvatom P.O., **COCHIN-682025**. ■ Navagiri Road, 1st Bye-Lane, Chandmani, **GUWAHATI-781003**. ■ H.No. 3-6-740, Street No. 12, Himayat Nagar, **HYDERABAD-500029**. ■ SB-12, Bhawani Singh Marg, Bapu Nagar, **JAIPUR-302015**. ■ SPMR College of Commerce, Canal Road, **JAMMU-180001**. ■ Old Govt. College Campus, Railway Road, **KARNAL-132001**. ■ B-1/133, Sector-H, Aliganj, **LUCKNOW-226006**. ■ 170-A, Patliputra Colony, **PATNA-800013**. ■ 3rd Floor, PMT Commercial Complex-I, Shankersheth Road, Swargate, **PUNE-411042**. ■ Sunny Lodge, Nongshiliang, Nongthymmai, **SHILLONG-793014**. ■ Rain Basera, Bye Pass Road, Khalini, **SHIMLA-171002**. ■ 52, Institutional Area, Tughlakabad, **NEW DELHI-110062**. ■ Camp Office, A-24, Durga Chambers, Distt. Centre Raj Nagar, **GHAZIABAD (U.P.)**

Director (SRE)



INSTITUTE FOR DEVELOPMENT AND RESEARCH IN BANKING TECHNOLOGY, HYDERABAD

(Established by Reserve Bank of India)

FACULTY POSITIONS & RESEARCH FELLOWS (Ph.D. Program)

The Institute for Development and Research in Banking Technology located at Hyderabad has been established by Reserve Bank of India with the objective to undertake the highest quality of Research, Development, Training and Consultancy in Banking Technology.

IDRBT is in the process of installing VSAT based Closed user Group network of Banking and Financial Sector, which will be operationalised in the first quarter of 1999.

The Institute is working on a number of research projects in the area of Electronic Payment systems, Security, Standards, Certification, Data Ware-housing, Multi-media products etc. IDRBT is collaborating with the University of Hyderabad to conduct Doctoral Programme and jointly conduct research and advanced education and training programmes in the area of Banking Technology and also allow MCA/M.Tech. projects to be carried out at the Institute in the area of banking technology.

The Institute has completed Academic complex with excellent facilities of Library, Conference Hall, Lecture-Hall, Computer and Multi-media labs, Campus-wide network, Computer resources, etc. and Executive Facility Centre which has executive rooms, visiting faculty accommodation, Research Fellow rooms, VIP Suites, executive lounge and a full-fledged recreation/relaxation centre with all modern facilities.

FACULTY POSITIONS

IDRBT invites application for posts of Faculty, Visiting Faculty and Faculty on deputation to guide and undertake the development, research and training activities. **Qualification and experience**, Ph.D. in Computer Science or closely related area with a very good academic record and relevant experience. Outstanding candidates with Post Graduation in Computer Science and relevant experience will also be considered. The Institute will also consider Professional Bankers with relevant experience and qualification for deputation to the Institute.

Remuneration : The salary scales of the faculty member are equivalent to those in IITs/IIMs. In addition, the Institute provides liberal perquisites such as medical facilities, vehicle loan, housing loan, leased accommodation, conveyance allowance etc., and other regular benefits. Faculty members are also entitled to accept CONSULTANCY ASSIGNMENT as per the rules of the Institute. Visiting Faculty will be provided furnished accommodation (less than a year) and an attractive pay package.

Applications giving full particulars about age, qualifications, details of experience, etc., must be sent within one month to the address given below.

RESEARCH FELLOWS/DOCTORAL PROGRAMME

The University of Hyderabad has recognised the Institute as a centre for guiding Ph.D. students under the external category. The Institute proposes to select up to five Research Fellows in collaboration with University of Hyderabad. Research fellows will work in the area of Banking Technology at the Institute. IDRBT will be awarding Rs. 8,000/9,000/10,000/- fellowship per month to selected candidates in the first/second/third year. Research Fellows will be involved in the research activities related with banking technology at the Institute. They will also get simultaneously registered for Ph.D. program at the University of Hyderabad. The Institute will provide single room accommodation facilities to the Research fellows on a chargeable basis. Minimum qualification for research fellows — Post Graduate degree in Computer Science or closely related area with minimum 55% marks or first class B.Tech/B.E. in Computer Science or Computer Engineering. Candidates appearing in final examination in 1998-99 can also apply.

Applications giving full particulars about age, qualifications, experience etc. and superscribing on the envelope "Research Fellowship" may be sent to the address given below. Shortlisted candidates will be supplied University of Hyderabad's prospectus and application form for consideration for the Ph.D. programme.

Address for communication :

The Director,
INSTITUTE FOR DEVELOPMENT AND RESEARCH IN BANKING TECHNOLOGY,
IDRBT, Castle Hills, Road No. 1, Masab Tank, Hyderabad-500 057 India
Fax : 3535157, E-mail:vpgulati@idrbt.ernet.in